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HAYDEN - AULT 345 KV TRANSMISSION LINE

COLORADO RIVER STORAGE PROJECT

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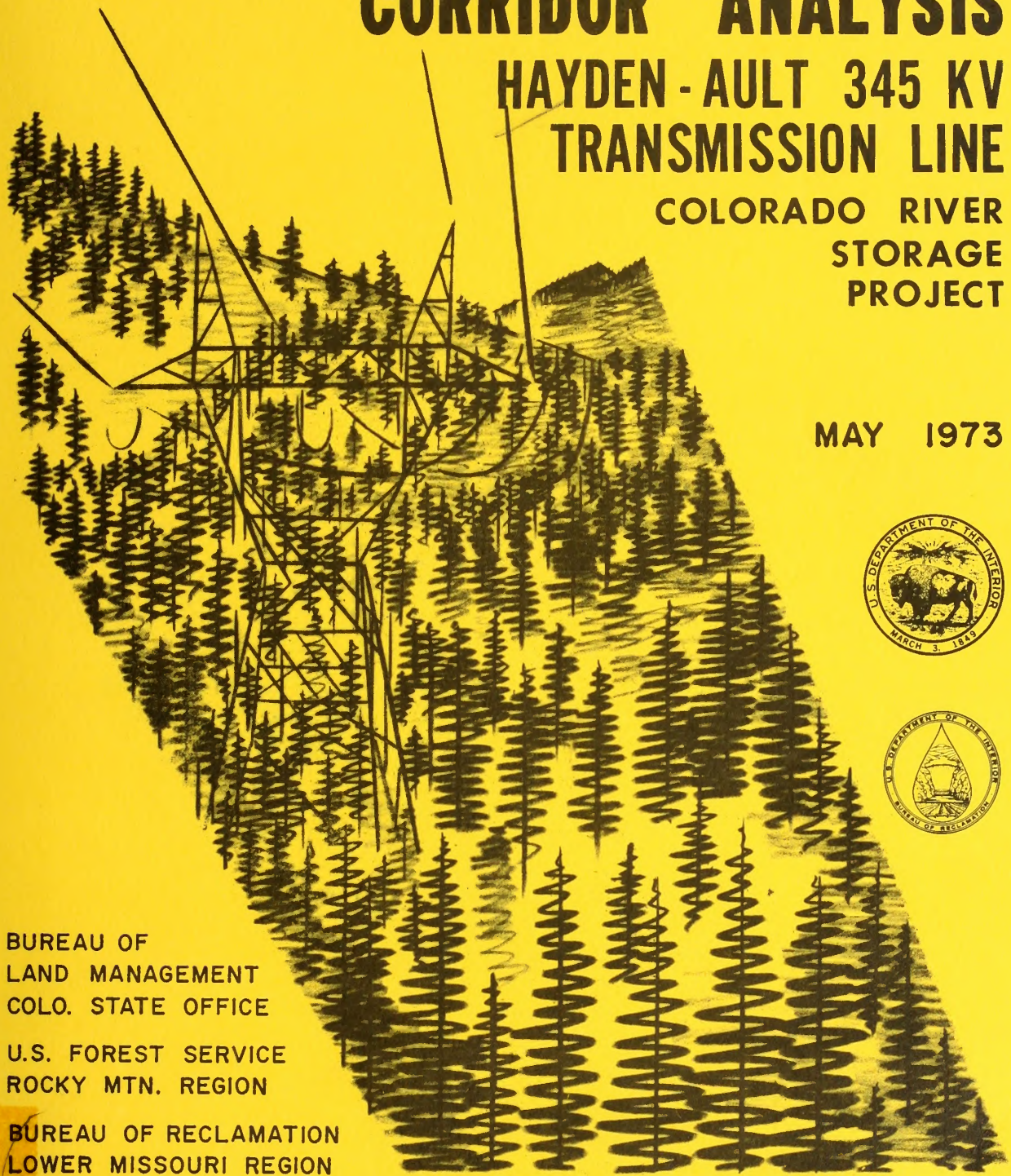

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COLORADO RIVER STORAGE PROJECT

ENVIRONMENTAL-ENGINEERING CORRIDOR ANALYSIS

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ENVIRONMENTAL-ENGINEERING CORRIDOR ANALYSIS FOR THE HAYDEN-AULT 345-KILOVOLT TRANSMISSION LINE

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SUMMARY

This corridor study for the Hayden-Ault 345-kv Transmission Line has been completed by a joint Bureau of Reclamation, Forest Service, and Bureau of Land Management team and covers six major alternate corridors and several minor alternates for a 345-kv line from the Yampa Valley to Northeastern Colorado. Five of the corridors start at the existing Hayden Substation and one at Colorado Ute's proposed substation site southwest of Craig, Colorado. All corridors end at the proposed Ault Substation about 5 miles northwest of Ault, Colorado. The studies considered engineering, environmental and land-use factors without regard to specific land ownership.

Public information meetings were held in Steamboat Springs, Walden, and Ft. Collins to solicit information from the public. Meetings were also held with Federal and State land management agencies and with the County Planning Commissions of all Counties crossed by the recommended corridor.

This report recommends a corridor which parallels the existing Hayden-Archer 230-kv line across Routt, Jackson, and Laramie Counties in Colorado and Albany County in Wyoming to a point about 2 miles east of U.S. Highway 287 in Albany County. At this point the corridor leaves the Hayden-Archer line to go southeast into Laramie and Weld Counties in Colorado, passing north and east of most of the irrigated and developed area near Ft. Collins. The length of the recommended corridor is about 160 miles.

I. INTRODUCTORY STATEMENT

1. Preliminary Considerations

For several years the Bureau of Reclamation and other electric power supply organizations have been studying the transmission requirements and power needs of the northeastern area of Colorado. Reports covering portions of these studies were prepared by the Transmission Task Force of the Western Colorado Resource Study (now the Yampa Project), Bureau of Reclamation Study 195, and Western Systems Coordinating Council (See Appendix D.) These reports demonstrate that the Bureau of Reclamation will need additional transmission capacity across the Continental Divide to deliver the full amount of Colorado River Storage Project power that will be available for customers in northeastern Colorado. An additional power supply will be required by Tri-State Generation and Transmission Association, Inc. and Platte River Municipal Power Association to meet northeastern Colorado's projected energy demands. Colorado-Ute Electric Association will also require a new power supply to meet its growing demands. The Salt River Project is scheduled to develop steam-electric generation to exchange for Bureau power. These individual needs, combined with the transmission system considerations arising from the scheduled connection of the Fryingpan-Arkansas Project into the Colorado River Storage Project transmission system, gave rise to a coordinated plan of development. It was found

that these joint considerations could be practically met by increasing the generating capacity in northwestern Colorado and building a joint-use high voltage transmission line from the existing Hayden Substation to a substation site near Ault, Colorado.

This corridor location analysis assumes that these other studies have established that the Craig power source and the Hayden-Ault Transmission Line is a practical alternative for supplying power to the needs of the northeastern area of Colorado, and that the need for the corridor for transmission lines from Hayden to the Ault area exists.

II. DESCRIPTION OF THE HAYDEN-AULT TRANSMISSION LINE

2. Power Sources for the Line

Bureau of Reclamation power is being generated by the Colorado River Storage Project. Tri-State Generation and Transmission Association, Platte River Municipal Power Association, and the Salt River Project of Arizona would participate with Colorado-Ute Electric Association in construction of a coal-fired steam powerplant in northwestern Colorado near Craig.

The Salt River Project power generated at Hayden and Craig will be exchanged at the Hayden Substation for Colorado River Storage Project power generated at Glen Canyon, thereby reducing the transmission line requirements for both agencies. The Western Colorado Resource Study Steering Committee (now the Yampa Project Steering Committee) established an environmental task force to prepare a report and an environmental assessment for the power generation portion and the overall Yampa Project.

3. Transmission System

The power generation planning was delegated to other organizations. The Bureau of Reclamation was assigned to recommend a substation site in northeastern Colorado and to develop a transmission system. The existing Hayden Substation east of Hayden, Colorado, was selected as the western terminal of the system. Future lines, if required, from other power generation sites would bring the

power to this location. A substation site near Ault, Colorado, was selected for the eastern terminal. A proposed transmission line would start at the Hayden Substation and extend to the proposed substation site near Ault, Colorado. The existing transmission system is shown on Exhibit No. 1. The Bureau of Reclamation's Lower Missouri Region is the proponent, with Tri-State Generation and Transmission Association and the Platte River Municipal Power Association also participating in the line.

The choice of voltage level for the new line was influenced by transmission needs, reliability, economics, and compatibility with existing systems. The combined transmission needs of the Bureau of Reclamation and other agencies in the area exceed the capacity of another 230-kv line. Present alternatives, within existing technological capabilities are: (a) a line of 345-kv capacity, (b) a line of 500-kv capacity, (c) a double-circuit line designed to carry one immediate 345-kv line and an additional future 345-kv line, or (d) separate 230-kv lines for each participant.

A 500-kv line has the following disadvantages which overrule its selection: (1) Initial costs of a 500-kv line would be over 50 percent more than for a 345-kv line, and (2) The existing system is not strong enough to stand the loss of a single heavily loaded

LEGEND

TRANSMISSION LINES	FEDERALLY OWNED CRSP	FEDERALLY OWNED OTHER	PRIVATELY OWNED	PUBLICLY OWNED	JOINTLY OWNED
EXISTING					
UNDER CONSTRUCTION					
PLANNED					
POWERPLANT (HYDRO)					None
POWERPLANT (FUEL)	None				
SUBSTATION OR DELIVERY POINT			Not Shown	Not Shown	Not Shown

*Pumped Storage Plants Only

C.R.S.P. POWERPLANTS

Name	Nameplate Capacity (MW)
GLEN CANYON	950*
FLAMING GORGE	108*
MORROW POINT	120*
BLUE MESA	60*
FONTENELLE	10*
CRYSTAL	28
SIXTH WATER (Central Utah)	90
OYNE (" ")	33
SYAR (" ")	10
TOTAL	1409

*Completed

Power Market Boundary

IDAHO
WYOMING
UTAH
COLORADO
NEW MEXICO
ARIZONA
NEBRASKA
SO. DAKOTA

YELLOWTAIL
THERMOPOLIS
CASPER
GLENROCK
FONTENELLE
FLAMING GORGE
HYRUM
SPRINGVILLE
VERNAL
HAYDEN
RANGELY
ARCHER
WELD
BEAVER CREEK
GREEN MTN.
RIFLE
[3-PLANTS] CENTRAL UTAH
CENTERFIELD
FILLMORE
PARAGONAH
CRYSTAL
MORROW POINT
SKITO
GUNNISON
MONTROSE
SALIDA
MIDWAY
PUEBLO
BLUE MESA
CURECANTI
PONCHA JCT.
ST. GEORGE
GLEN CANYON
SHIPROCK
FLAGSTAFF
PINNACLE PEAK
5 Plants
MESA
AMBROSIA
ALBUQUERQUE

UNITED STATES
DEPARTMENT OF THE INTERIOR
ROGERS C. B. MORTON SECRETARY
BUREAU OF RECLAMATION
ELLIS L. ARMSTRONG COMMISSIONER

COLORADO RIVER STORAGE PROJECT

INTERCONNECTED TRANSMISSION SYSTEM

MAP NO. 594-400-79
JULY 1971
REVISED JULY 1972

Exhibit 1

500-kv line. Cascading and perhaps complete system failure could occur if a 500-kv line failed.

It was suggested that one alternate open to the Bureau of Reclamation was to double-circuit the entire Hayden-Ault line since projected demands for other power suppliers indicate that another line may be needed at a future date (See Item 4. Future Transmission Requirements, Page 7). The primary advantage for double-circuiting is that only one set of structures would be required. This would decrease the magnitude of associated impacts and eliminate additional right-of-way costs. The disadvantages are: (1) New technology may result in obsolescence. (2) Double-circuiting is 60-80% more expensive. (3) Some new method of financing would be necessary since Government agencies are not able to construct in advance of need. (4) System reliability would be drastically decreased, and (5) An outage of the Hayden-Archer line of at least 9 months would be required for installation.

Based on these conditions, the 345-kv level was selected. This new line will have approximately three times the capacity of any existing Bureau of Reclamation transmission lines in the area. The existing system is strong enough to support the loss of this line under normal load conditions.

4. Future Transmission Requirements

In addition to the present proposed 345-kv line, there is a predicted future need for additional transmission capacity to eastern Colorado from Hayden whether or not the capacity of the existing 230-kv Hayden-Archer line is increased.

Total land-use management considerations would indicate that the proposed corridor should be designed not only for immediate use, but should also consider further requirements.

Considering the amount of coal resource available in the Hayden-Craig area, and the future load growth in eastern Colorado, it is possible that two more lines across the Divide in addition to the proposed line will be needed within the next 30 years. One of the new lines may travel southeast from Craig through the Leadville area, South Park, and into the southern part of the Denver metropolitan area. The other line could be routed to the northeast of the Hayden-Craig area, paralleling the proposed Hayden-Ault line, to bring additional power into the Ault Substation and the northern portion of the eastern Colorado metropolitan areas. The corridor for the new Hayden-Ault line should therefore be capable of taking additional capacity at some future time.

To prevent excessive intrusion on natural aesthetics, some limit

should be placed on the maximum number of transmission lines that will be permitted in a corridor. The North Central Power Study recommended a maximum of four lines per corridor. The Forest Service has recommended that not more than one corridor be permitted between Hayden and Ault, and that not more than two high voltage transmission lines be permitted in this corridor.

5. Corridor Definition

A corridor is defined herein as a strip of land used in transmission line planning stages, which is sufficient in width to provide latitude in locating one or more transmission lines therein using topography and vegetation in a manner to achieve the greatest harmony with the natural surroundings and the least impact on the environment.

A corridor may be a half mile to three-fourths mile wide or wider depending on terrain, vegetation, or other constraints. Transmission lines located within a corridor may be in close parallel or vary from minimum to maximum separation. When a transmission line alignment has been located within a corridor, only the right-of-way would be acquired. Right-of-way widths vary for different voltage lines. The normal right-of-way width for this 345-kv transmission line would be approximately 190 feet.

6. Environmental Protection

Environmental protection on this project will conform with the requirements of the publication Environmental Criteria for Electric Transmission System (See Appendix D) and will be consistent with the National Environmental Policy Act of 1969. The multiple-use concept of land management will be employed in the location of the line and in locating each individual structure site within the recommended corridor. Liaison will be maintained with local Governmental agencies, public land administrating agencies, landowners, and the public during planning, design, construction, and operation of this project.

III. DESCRIPTION OF ENVIRONMENTAL-ENGINEERING ANALYSIS

7. Objective of the Analysis

The objective of this environmental-engineering analysis is to study several possible corridors and recommend a corridor for this proposed transmission line and possible future capacity. The corridor is to cause the least adverse impact on the environment considering engineering factors and related economics, both public and private, consistent with the National Environmental Policy Act of 1969. Also, the analysis is to identify impacts associated with the recommended corridor and their possible mitigation.

8. Geographic Boundaries

The boundaries of this analysis were delineated on the north by a line running east and west at Tie Siding, Wyoming, and on the south by the Rocky Mountain National Park. Areas outside these boundaries were considered not practical due to high environmental impacts, economic costs, power losses, and crossing the Continental Divide.

9. Planning Considerations

The following main considerations were taken into account in this corridor analysis:

a. Economics

(1) Costs of mitigating environmental impacts

(2) Construction costs

(3) Operation and maintenance

(4) Powerline loss factors

(5) System reliability

(6) Right-of-way

b. Physical Features

(1) Altitude

(a) Reduced construction season with increasing altitude

(b) Power losses due to corona effects

(c) Greater ice loads occur on exposed (updraft) slopes of higher ranges.

(2) Topography

(a) Rough terrain impedes access.

(b) Steep slopes may necessitate special construction techniques.

(c) Rough terrain may require more structures per mile and more of the heavier dead-end and angle-type structures.

(d) Maintenance becomes more difficult in rough terrain.

(e) Visual impact is greatest on long exposed slopes, flat terrain, and heavy-timbered areas.

(f) Suitable passes through the high mountain ranges control the locations of the corridors. Suitable passes across the Continental Divide occur near the Colorado-Wyoming state line, at Buffalo Pass, near Lost Lake north of Rabbit Ears Peak, Rabbit Ears Pass, and south of Walton Peak near the headwaters of Harrison and Green Creeks. Suitable passes across the Medicine Bow Range occur in the Cameron and Montgomery Passes area, at Ute Pass, and in the Government and Pinkham Creeks area near the Wyoming state line.

(3) Geology, Soils, and Drainage

(a) Erosion more prevalent in disturbed soil

(b) Ease of revegetation

(c) Structural foundations are more difficult in rocky or boggy areas and areas of soil slippage.

(d) Accessibility

(e) Mineral development such as open pit or strip mines and oil fields should be avoided, if possible.

c. Social

(1) The developed high-use recreation areas such as the Red Feather Lakes area; the Cache La Poudre River Canyon; and the Steamboat Ski Area should be avoided

as much as practical.

(2) Municipal areas such as Steamboat Springs, Walden, and Fort Collins should be skirted, if feasible.

(3) Activities on irrigated crop lands and meadows should be limited.

(4) Known land-use patterns and plans should be considered.

d. Legal Constraints

(1) Wilderness areas

(2) National Parks

(3) Game refuges

(4) National and State forests

(5) Natural areas

(6) Historical and archeological sites

(7) Roadless areas

e. Biological

(1) Fragility of ecosystems, especially alpine tundra and sand dunes

(2) Vegetative types, density, and size

(3) Known habitat of rare and endangered species should be excluded, if possible.

(4) Biota of the area

10. Analysis Procedure

Corridor evaluation began in April 1971. Interagency study teams were formed as needed to make detailed studies and recommendations

of corridors. The interagency study teams evaluated the alternate corridors without regard to land ownership patterns, although existing and planned uses were considered where known. Social impacts and critical environmental relationships, including soils, water, wildlife, recreation, timber, and aesthetics were considered. The proposed corridors cross terrain that may be separated into six distinct areas, each having its own environmental engineering and land-use characteristics. These areas are shown on Exhibit No. 49 and are described in Chapters IV through IX.

The corridors vary in length from 130 to 180 miles and cross Moffat, Routt, Grand, Jackson, Larimer, and Weld Counties in Colorado, and Albany and Carbon Counties in Wyoming. The corridors cross the Routt, Arapaho, Roosevelt, and Medicine Bow National Forests, Colorado and Wyoming state lands, Bureau of Land Management lands, and many private lands.

David J. Davies, U.S. Forest Service, and Walter R. Terry, Jr., U.S. Bureau of Reclamation, were assigned to an interdisciplinary study team on September 7, 1971. This team was formed with the approval of other public and private agencies associated with providing corridor right-of-way for the project. Using various passes across the Continental Divide as control points, four principal routes with several minor alternates were laid out considering information available from maps and from personal knowledge. The location of

these preliminary corridors was considered to be general only and subject to verification or change, or complete elimination. The possible corridors assigned to the team for study and the major alternates to portions of these corridors are shown on Exhibit No. 49. In addition to these alternates, the team was instructed to investigate any additional alternates which they believed might be more favorable from environmental, land-use and engineering aspects. Investigations were to include only corridors for surface transmission line between the selected substation sites. Investigation of other methods of supplying the power needs of the use area was not included in this assignment. The alternate corridors and subcorridors were flown by fixed-wing aircraft during the weeks of September 6 and 13, 1971.

From September 27, 1971, to October 15, 1971, ground reconnaissance and studies were made. At this time, an effort was made to gather information concerning the environment, use of the land involved, and any economic factors that could affect the construction and operation of the line.

The week of October 18, 1971, a helicopter was used to fly the corridors. At the time, the areas not accessible to vehicles were given special consideration. The helicopter proved to be the best method of studying the various corridors.

On March 30, 1972, Melvin L. Shilling was assigned to the project as liaison officer for the Bureau of Land Management.

A preliminary draft of the corridor location analysis was furnished to the County Commissioners of Jackson, Larimer, Routt, and Weld Counties. Mettings were held with the County Commissioners of the above named counties in April 1972. On June 19, 20, and 21, 1972, the Bureau of Reclamation held public meetings at Walden, Steamboat Springs, and Fort Collins, Colorado, to receive input from the public on this proposed transmission line and the corridor location study. At these public meetings, several people requested the Bureau to study additional corridors, which would avoid the city of Steamboat Springs, and other alternatives of bringing the transmission line through the city of Steamboat Springs on double-circuit structures with the existing Hayden-Archer line.

As a result of the public meetings, a new study team was formed. Jim Spence, Engineer with Bureau of Reclamation in Cheyenne, Wyoming, and Dave Molinaro, Forester, Forest Service, Denver, Colorado, were assigned to study and make recommendations on corridors going north from the Hayden Substation to near the Wyoming border, then east to intersect corridors previously studied. Jim Spence, with help from Bureau of Land Management personnel, was assigned to study a corridor going north from

Craig, Colorado, to the Wyoming line, then east to the Encampment River.

A helicopter reconnaissance was made by the Bureau of Reclamation, Bureau of Land Management, Forest Service and the Director of Planning of the Routt County Regional Planning Commission during June 27-29, 1972.

Field reconnaissance of the corridor going north from Hayden Substation began July 10, 1972, and was completed July 28, 1972. Another helicopter reconnaissance was conducted July 26, 1972, with the study team participating. A helicopter reconnaissance was made during the week of August 14, 1972, to look at a possible route going north out of Craig, Colorado. Field reconnaissance of this corridor was started on August 21, 1972, and completed August 24, 1972.

A draft addendum was published on September 15, 1972, and a meeting with the Routt County Commissioners and County Planning Commission was held in Steamboat Springs on October 24, 1972, to discuss the results of the additional studies.

With the additional studies and various changes, it was decided to update the original corridor location study and the later study into one report.

It is felt the recommendations and findings developed in this analysis should be applied. This will make a selected corridor compatible with today's environmental requirements and with the long-range management and development of the affected portions of National Forest, Bureau of Land Management, other Government agencies, and private lands.

All participants in this study have cooperated by providing technical data, equipment, personnel, and advice in evaluating and preparing this report. Continued cooperation is anticipated during subsequent phases of this project.

and used for reference during review of Chapters IV through IX.

IV. AREA A, YAMPA VALLEY

11. Area Description

This section of the proposed corridors includes the Hayden Substation, the area around Steamboat Springs and Craig, Colorado, the extensive subdivisions in the Steamboat Springs area, U. S. Highway 40, State Highways 131 and 13-789, the Denver and Rio Grande Western Railroad, and numerous farms and ranches. This encompasses the Yampa Valley and the Little Snake River drainage from the base of the mountains forming the Continental Divide and the Gore Range.

12. Existing Area Environment

a. Physiography

This is a high mountain valley ranging in elevation from 6,200 feet near Craig to over 7,500 feet in the Steamboat Springs area. Several small peaks in the valley rise to an elevation above 8,000 feet. The valley is a region of rolling hills with small creeks.

Mountains are on the north, east, and south of the valley. Major drainages are the Yampa, Little Snake, and Elk Rivers. To the west, the Yampa River flows through open country to enter the Green River.

The northern half of this area is characterized generally by broad valleys and parks sloping into timbered mountains of moderately to occasionally steep slopes. The intervening natural mountain parks such as California and Slater Parks are at approximately the 8,000-foot elevation. Bear's Ears Peak in the Elkhead Mountain Range rises to 10,661 feet and Hahns Peak to the east is 10,839 feet in elevation. The terrain is not considered excessively rugged within this half of the area.

b. Soils and Erosion

The soils are dominantly residual on sandstones and shales. They vary from shallow to deep and from sandy to heavy textured. The soils from Craig east are influenced by eolian silts. South of Steamboat Springs area, there is much variation between the soils. Extremes in depth vary from cobble and gravel bars exposed at the surface (especially at the Yampa River bottom) to soils several feet deep. Stratification of sand, silt, and clay with cobble or gravel is common.

Drainage is poor in meadow areas. This may result from poor soil structure, impervious substrata, or unfavorable topography. Many areas become inundated during the spring thaws in May and early June.

Soils in the northern part of the area are generally silty clay loam to silty clay. Erosion occurs in these areas and the clayey soils may make revegetation difficult. On benches and forested mountain slopes, soils vary from silty clay loam to fine sandy loam overlying sandstone, granitic bedrock and cobbly subsoil. They are generally well drained and vegetation consists mainly of native grasses, sagebrush, and aspen. Some rock outcrops are present. At high elevations there are deep, well-drained soils and rock outcrops. Soils are generally sandy loam and have high stone content. Rock outcrops are igneous bedrock. Where heavy clay subsoil exists, slippage may occur when the soil becomes saturated. This occurs with or without surface disturbance.

Both sheet and gully erosion caused by snow-melt runoff and summer rains occurs on the sloping dry farmlands and natural mountain parks. The erosion can be a serious factor in power line construction if construction roads are not properly graded, drained, and bedded after use.

c. Climate

Climate in the Yampa Valley is typified by fairly cold winters and moderate summers. Precipitation ranges from 13 inches a year at Craig to over 23 inches at Steamboat Springs. Temperature variations can be extreme although the mean yearly

temperature is around 40°F. A maximum of 102°F. and a minimum of -54°F. have been recorded in the valley. The average growing season varies from 90 days in the western reaches to 50 days near the foot of the mountains.

d. Vegetation

Native vegetation is predominantly big sage and black sage in the western part of this section and oakbrush in the eastern part.

Principal grasses include western wheat grass, needle and thread, and Indian ricegrass, with bunch wheat grass found at higher elevations. Some of the north and east facing slopes have a large amount of chokeberry and serviceberry.

Patches of aspen, Engelmann spruce, and subalpine fir occur in the higher elevations on the north-facing slopes. These stands are scattered through this section. Big and black sage usually indicate moderately heavy to heavy-textured soils. Chokeberry generally indicates deep, dark soils high in organic matter. Oakbrush occurs largely on the shallow to moderately deep, medium-textured soils.

e. Wildlife

In the lower elevations of the Yampa Valley, the major wildlife species include mule deer and elk in the winter, rabbit,

fox, coyote, bodger, gopher, raccoon, skunk, and many small rodents. Game birds include the sage and sharp-tailed grouse and a few Hungarian partridge north of Craig. The grouse use this area as strutting grounds for mating. Many species of waterfowl and songbirds also occur. Numerous ducks nest in this area and many more migrant waterfowl rest here during fall migration.

The Sandhill crane nests north of Hayden in California Park on the upper Elkhead Drainage.

Fish common to the Yampa River include whitefish, rainbow trout, and rough fish in the warm waters.

Mule deer and elk use the upper reaches of this area for summer range. In addition to the species found at lower elevations, black bear and blue grouse may be found in the higher portions. Trout are the predominant cold-water fish. (See Appendix C for more details.)

f. Land Uses

(1) Agriculture

Farming in the Area is devoted to the production of livestock, hay, and small grains. The flood plains of streams are irrigated and used chiefly for the production

of hay and irrigated pasture land. The accumulation of snow in the winter makes feeding of livestock a necessity. Land that is level enough to be farmed is devoted to production of small grain, mostly wheat. There is a very short growing season in the valley which makes crop variety an impossibility. An expansion of the farming economy is not foreseen. Using the present trend in farm operation as a guide, it is anticipated that the farm population and acreage will decrease. In the Steamboat Springs area, the recreational development and residential subdivisions have been diverting agriculture lands to other uses.

In the west end of the valley around Craig, which is somewhat lower in elevation than the east end, the major source of income is agriculture. The average growing season in Moffat County is about 80 days while in Routt County to the east, it is 30 days. Although it is anticipated that the farm population and acreage will decrease toward the eastern end of the valley, the opposite is anticipated for the western end and northern areas. More farmers are planning sprinkler irrigation systems and more lands are expected to be under irrigation, using water from the Bureau of Reclamation's proposed Savery-Pothooks Project to the north.

(2) Industry

Industrial development in the valley has been slow. There is an abundant supply of coal in the region. Mining of coal was an important economic asset when coal was the fuel used by the railroad, businesses, and residences in the area. Very little coal is used for heating purposes at this time, and the railroad is using oil for its power needs. Some coal is being shipped out of the region, but this is a minor activity. An electric generating plant is operating near Hayden, which creates employment for about 50 people. Approximately 25 people are employed at the mine which furnishes the coal. There are now plans to increase the size of the powerplant which will increase the employment by approximately 60 people. Most of the power generated leaves the area by transmission lines to be consumed elsewhere. The economy of the west and north portions of this area is derived almost exclusively from farming and ranching. A small sawmill is located in Craig and several small oil fields are located in the Craig area. Further exploration for oil is continuing on a minor scale.

The Denver and Rio Grande Western Railroad and truck lines serve the area. Commercial air transportation is available

at the Hayden airport, and private aircraft service is available at the Steamboat Springs and Craig airports. The major means of access to the valley is U. S. Highway 40 and State Highways 131 and 13-789.

(3) Recreation

Recreation is a rapidly expanding industry in the Yampa Valley. The area is scenic and many people come to the valley in the summer for sight-seeing, hiking, camping, and fishing in the surrounding mountains. In the fall, sportsmen come to the valley to hunt for big game. Skiing is a major attraction to the area. Major ski areas are being developed south and southeast of Steamboat Springs. The number of people employed is difficult to estimate as the employment is largely seasonal. The recreation is varied, and offers some type of activities throughout the year. Recreation opportunities provide a fairly stable tourist industry for the valley.

(4) Special Interest Points

According to the State Historical Society of Colorado, there are no known archaeological or historical sites in this area. In the Steamboat Springs vicinity, there are a number of natural hot springs. One of these springs has been developed into a swimming pool which

has both indoor and outdoor pools. The town of Steamboat Springs was named after one of the springs near the Yampa River.

13. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 0.0 - 1.0

The corridor goes east from the Hayden Substation, crosses Sage Creek and turns northeast to U. S. Highway 40. This section traverses a flat bench of land composed of silty sand. Existing and planned powerplant facilities will be spanned or skirted by the transmission line.

Mile 1.0 - 2.0

This section crosses U. S. Highway 40, the Denver and Rio Grande Western Railroad, and the Yampa River. The entire length is in full view of the highway.

Mile 2.0 - 3.5

This section goes up a long, gentle slope in a gullylike depression. The area is in view of the highway, and a thin overburden overlies rock in this area. There are several roads on this slope which give good access to the area.

Mile 3.5 - 17.0

This section of corridor crosses several small creeks such as Wolf, Tow, and Trull Creeks in an area of low hills, then goes along the base of Elk Mountain to a high point overlooking the

Elk River about 6 miles north of Steamboat Springs, Colorado. The hills are basically rock with varying depths of overburden. Grassland, dryland wheat farms, and areas of oakbrush occur from Trull Creek to the Elk River. No known subdivision has occurred although development plans were reported. A long span may be required over Wolf Creek. The routing would be along the edge of an abandoned surface mine between Wolf and Tow Creeks. Seneca Coal Company reports all the coal that is recoverable by surface mining has been mined and the lease has been abandoned. Seneca Coal Company also reports the remaining coal in the area would be extracted by underground mining, and the transmission line would not interfere with the underground operation. Access is good.

Mile 17.0 - 18.0

This section of corridor crosses the Elk River and the Elk River road from one high point of land to another high point of land. Overburden is thin and rock will probably be encountered in any excavation. Roads should not be built on these slopes. The Steamboat Springs airfield is approximately 4 miles south of this corridor. Mad Creek Village, a private resort, is located on the Elk River in the corridor area.

Key Considerations in Corridor No. 1, Area A

1. High visual impact in Mile 1.0 - 3.5
2. Possible subdivision development in Mile 0.0 - 17.0

3. Access is reasonable in Mile 0.0 - 17.0.

4. In Mile 17.0 - 18.0, there is high visual impact, recreational use, and a difficult construction area. Helicopter construction may be necessitated by these factors.

5. Special safety designs may be required due to proximity of Mile 17.0 - 18.0 to Steamboat Springs airfield.

Corridor No. 2

Mile 0.0 - 9.5

This section of corridor goes southeast from the Hayden Substation to Twenty Mile Park. In the vicinity of the substation, the corridor will cross the Hayden-Rifle 230-kv, the Hayden-Meeker, Hayden-Vernal 138-kv lines, and the Hayden-Steamboat 69-kv line. The corridor will parallel the existing 138-kv Hayden-Green Mountain line and the existing 230-kv Hayden-Archer line. The corridor would parallel a proposed 230-kv transmission line from Hayden to Wolcott and a proposed 138-kv line from Hayden to Steamboat Springs. The corridor goes through wheatfields to the Grassy Creek road and then through low, rough hills to Twenty Mile Park. The soil in the wheatland is clay and is swampy in the draws and creeks. The hills from Grassy Creek to Twenty Mile Park are composed of rock with thin overburden. Coal in commercial quantities does not occur on the south side of the existing lines, but north of the corridor there is a possibility of commercial

coal deposits. At least two long spans will be required at Grassy Creek due to the terrain. Access is good.

Mile 9.5 - 17.5

This section departs from the existing Hayden-Archer line at Mile 9.5 and goes southeast through Twenty Mile Park, over some low hills to Colorado Highway 131. The corridor will cross the Hayden-Green Mountain 138-kv transmission line and the proposed 230-kv line to Wolcott at the start of this section. Soils have silt-loam surface layers and thick clay-loam to clay subsoils. There are coal deposits in the area but none in commercial quantities in this section. Access should be good. Some road building may be required.

Mile 17.5 - 24.5

This section of corridor goes from Colorado Highway 131 to the Yampa River. The soil is mostly clay and any excavation in the hayfields will probably encounter ground water and river gravel below the topsoil. Most of this section has been subdivided and residential construction has been started. Access is good.

Key Considerations in Corridor No. 2, Area A

1. Several transmission lines are crossed in Mile 0.0 - 10.0.
2. Possible commercial coal deposits north of the corridor

3. Good access
4. Crossing ranchlands through hayfields and meadows
5. Visual impact as seen from Colorado Highway 131
6. Subdivision and residential construction exist in Mile 17.5 - 24.5.

Corridor No. 2NN

Mile 13.4 - 21.4

This alternate corridor to No. 2 starts at the east edge of Twenty Mile Park at Mile 13.4 of Corridor No. 3 and goes to the west side of the Yampa Valley, about 4 miles south of Steamboat Springs. The entire length is in low rolling hills. The soil is a clay material. Access is good.

Mile 21.4 - 25.0

The section of corridor crosses the Yampa Valley from west to east and is about 4 miles south of Steamboat Springs. The corridor would cross U. S. Highway 40 and Colorado Highway 131, both scenic highways and heavily traveled. Most of the soil is composed of clay topsoil overlaying river gravel. Most of this section is now, or has been, irrigated hayfields and the water table is close to the surface. There is active subdividing on the eastern end. Access is good.

Key Considerations in Corridor No. 2NN, Area A

1. High visual impact as seen from U. S. Highway 40 and Colorado Highway 131

2. Subdivision developments in Mile 21.5 - 25.0

3. Good access to general area, but road construction along the right-of-way would be difficult due to irrigated hayfields in Mile 21.5 - 25.0.

Corridor No. 3

Mile 0.0 - 9.5

This corridor begins at the Hayden Substation and is the same as Corridor No. 2, Mile 0.0 - 9.5.

Mile 9.5 - 23.0

This section goes from the west side of Twenty Mile Park to the top of Quarry Mountain. The first 6 miles are across low rolling hills. The corridor then begins a gradual climb to steep hills at Quarry Mountain. The corridor will cross one 138-kv transmission line and a proposed 230-kv transmission line at the start of this section. The corridor will parallel the Hayden-Archer and proposed Hayden-Steamboat lines. Twenty Mile Park is in a soft sandstone formation with shallow overburden and the remainder of the corridor is in a clay soil. Access to the area is good.

Mile 23.0 - 26.0

The corridor goes northeast from Quarry Mountain, across the Yampa River, the Denver and Rio Grande Western Railroad, and U. S. Highway 40, and goes through the south edge of Steamboat

Springs, the Ramada Inn and Barry-Stark developments to the west slope of the Continental Divide. The east side of Quarry Mountain is a slide area. Several small slides have occurred. The soil is a silty sand over a cobbly subsoil with soils near the river being silty clay loam over a soft shale. Access is good.

Key Considerations in Corridor No. 3, Area A

1. Several transmission lines are crossed in Mile 0.0 - 10.0.
2. There are possible commercial coal deposits in Mile 0.0 - 9.5.
3. Quarry Mountain is a slide area.
4. There would be a high visual impact at U. S. Highway 40 and the town of Steamboat Springs.
5. There are recreational, commercial, and subdivision developments in the vicinity of Steamboat Springs.
6. Yampa River crossing
7. Corridor parallels proposed and existing transmission lines.

Corridor No. 5

Mile 0.0 - 2.0

This section begins at the Hayden Substation and is the same as Corridor No. 1, Mile 0.0 - 2.0.

Mile 2.0 - 7.5

This section goes up a long, gentle slope in a northwesterly direction, traverses the west slope of a ridge just west of Wolf Creek and crosses a number of dry and/or intermittent streams to a pass on the east side of Hooker Mountain.

Portions of this section will be visible at a distance to travelers coming east on U. S. Highway 40, but will have a ridge as a backdrop. The section has silty clay subsoils and erosion potential is present.

There are numerous roads on the west-facing slopes and benches.

Mile 7.5 - 11.8

This section goes in a north-northeasterly direction on benches of moderately sloping west-facing hillsides, crossing numerous dry and/or intermittent stream courses to Cottonwood Creek. Soil is generally silty clay throughout. This section is visible from the California Park road which generally parallels the corridor. Access is good in dry weather. The California Park road is almost impassable when wet.

Mile 11.8 - 19.2

From Cottonwood Creek, this section goes northeast near Pilot Knob to the southern edge of California Park at the South Fork of Elkhead Creek. Stands of aspen, spruce, fir, and lodgepole pine are encountered near Pilot Knob. Preliminary

subdivision plans have been made near Pilot Knob, but these have not been filed. Soils are loam-silty loam, some high in very fine sand and some clayey. Some boggy areas are in the section. Rock slides are prevalent around Pilot Knob. Road access is reasonably good. It is possible that there may be coal deposits in some portions of this section, since mines exist south of Pilot Knob.

Mile 19.2 - 32.2

This section continues in a northerly direction from the South Fork of Elkhead Creek staying generally near the base of the slopes on the east side of California and Slater Parks. The corridor turns northeast through a saddle 8600 feet in elevation and drops down to South Fork Park from the southeast, then continues north to a point near where Oliver and Johnson Creeks enter the South Fork of the Little Snake River. The terrain is generally open meadows of grass with sagebrush and aspen on gentle slopes. Small areas of lodgepole pine-spruce-fir timber are encountered at Torso Creek. The corridor crossing on Torso Creek goes through boggy areas west of a large beaver pond complex and east of the California Park Guard Station. Boggy conditions also exist in crossing the two forks of Slater Creek near the Smith Ranch. Road access is generally not available in this section, except in South Fork Park. Soils

generally are silty-loam surfaces with heavy clay subsoil which causes soil slippage when saturated. Natural slides are numerous in California and Slater Parks. Access is good in South Fork Park up to Oliver and Johnson Creeks.

Mile 32.2 - 39.2

This section of corridor climbs from a bench between Oliver and Johnson Creeks to moderately steep slopes and benches, staying on the west and north slopes of Shield Mountain and east of the South Fork of the Little Snake River until it crosses the Middle Fork of the Little Snake River. Sagebrush, grass parks, benches, and aspen are predominant in this section. Road access is nearly nonexistent in this section except for a few primitive roads. The soils are shallow and well-drained loam with loam-filled stony or gravel subsoil. Areas of granitic rock outcrops are present, mostly on the north slope of Shield Mountain.

Key Considerations in Corridor No. 5, Area A

1. There would be a visual impact at the U. S. Highway 40 crossing and in most places along the California-Slater Parks road.
2. There are possible subdivision developments in the vicinity of Mile 1.0 - 2.0 and on the east side and near the top of Pilot Knob.

3. There would be difficult construction due to rough terrain in Mile 32.2 to 39.2 and unstable soil conditions in Mile 19.2 - 32.2.
4. There is a potential reservoir site in California Park.
5. There are Sandhill crane nesting areas in California Park.
6. There would be difficult access in winter months from Mile 7.5 to 39.2.
7. The corridor infringes upon roadless areas inventoried by the Forest Service in the California and Slater Parks area and along the South Fork of the Little Snake River.

Corridor No. 5N

Mile 0.0 - 6.3

This alternate corridor begins at the Hayden Substation and goes north crossing U. S. Highway 40, the Denver and Rio Grande Western Railroad, and the Yampa River. There are irrigated hay meadows and pasture in the floodplain. The alternate then proceeds in a northeasterly direction up the east side of Mat Gulch intersecting Corridor No. 5 at Mile 7.5. Existing lines and planned powerplant facilities will be spanned or skirted on this route. The river floodplain has exposed gravel and any excavation will likely encounter ground water and river gravel.

Most of this section will be in full view of U. S. Highway 40. Access if good outside the river floodplain.

Key Considerations in Corridor No. 5N, Area A

1. There would be a high visual impact from Mile 0.0 - 6.3.
2. There would be construction difficulties through the Yampa River floodplain.
3. Irrigated hay meadows and pasture would be crossed.
4. Existing and future powerplant facilities and lines would have to be spanned or skirted.

Corridor No. 5S

Mile 32.2 - 40.4

This section of corridor starts from Mile 32.2 of Corridor No. 5 and goes east along Johnson Creek over a pass southeast of Shield Mountain and across King Solomon Creek to the Middle Fork of the Little Snake River. The terrain up to the pass is gently sloping to moderately steep and vegetation is predominantly aspen. There is a primitive road up Johnson Creek within the corridor. The soils are loam with a gravelly subsurface and are well drained. Access within this section west of County Road No. 129 is limited to two short segments of trail road, one reaching to within a mile of the pass. There is no access to the section between King Solomon Creek and the Middle Fork. Portions of this corridor may be visible from County Road No. 129.

Key Considerations in Corridor No. 5S, Area A

1. There would be a visual impact from County Road No. 129.
2. The corridor crosses a roadless area inventoried by the Forest Service.
3. Limited access, possible back-country designation by the Forest Service and resource damage from road construction may require helicopter construction.

Corridor No. 6

Mile 0.0 - 15.7

The corridor begins at the Colorado-Ute's proposed Substation site southwest of Craig and goes in a northeasterly direction crossing the Hayden-Vernal 138-kv transmission line, State Highway 13-789, and the Yampa River. The corridor then crosses U. S. Highway 40 about 2 miles west of Craig and continues in a northeasterly direction over rolling terrain, through alternating wheat fields and sagebrush to Sand Gulch. The corridor then goes north over rolling sagebrush hills and gullies to the top of a hill just south of Blue Gravel Creek.

An airport is located about 1½ miles southeast of Craig. Soils are deep loam over sandstone and shale. Access is good since several dirt roads cross the corridor in an east-west direction with a good dirt road paralleling this section about a mile to the east.

Mile 15.7 - 31.2

This section of corridor goes northeasterly crossing Blue Gravel Creek, the Yampa Valley REA's 44-kv transmission line, the Mountain Fuel Supply Company's pipeline, Fortification Creek, and State Highway No. 13-789 to a plateau just west of Little Cottonwood Creek. The corridor goes north, crossing the South Fork and the North Fork of Fortification Creek. The corridor continues north toward Baker's Peak crossing Four Mile Creek and several intermittent streams to a small plateau overlooking Willow Creek.

Low areas in the vicinity of Four Mile Creek tend to be wet and swampy and soils on steeper side slopes have a tendency to slough. The area just east of the corridor between Four Mile Creek and Willow Creek has been subdivided into 5 to 20-acre ranchettes. The Pondella Ranch buildings are approximately 1 mile west of the corridor on Four Mile Creek. The corridor skirts to the east of ranch buildings on the South Fork of Fortification Creek.

Mile 31.2 - 52.8

This section of corridor crosses Willow Creek, turns and goes easterly across First, Second, and Slater Creeks. The corridor goes northeasterly through low rolling to flat open terrain, crossing Willow Creek and Gold Blossom Creek just to the south

and east of Beaver Mountain, then goes northerly, crossing Brown Creek and County Road No. 129 to the Little Snake River.

Soils in the section from south of Baker's Peak to east of Slater Creek have a tendency to slough on the steeper side slopes. Some areas of sloughing or slippage are quite large and may include an entire hillside. The soils from just east of Slater Creek to the Little Snake River appear more stable. Access through this whole section is fair to good. The section of corridor which approaches the Little Snake River and Slater Creek will be visible from County Road No. 129.

Key Considerations in Corridor No. 6, Area A

1. High visual impact in the Craig and Three Forks area, and at highway crossings
2. Unstable soil conditions south of Baker's Peak
3. Proximity to the Craig airport and landing strip near Mesa View Ranch.
4. Subdivision developments near Willow Creek and south of Baker's Peak

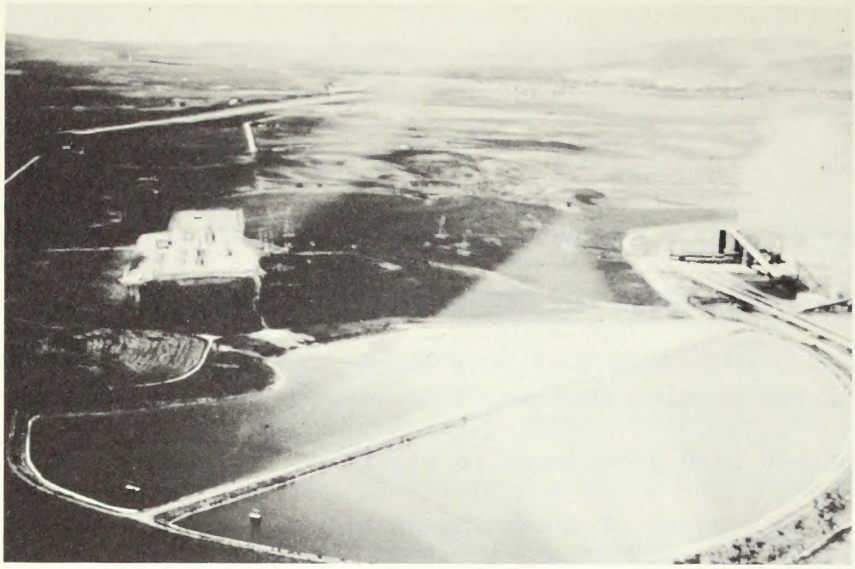


Exhibit 2
Hayden Substation and Powerplant. All corridors start from this point. View is looking westerly with Hayden, Colorado, in the background.

Exhibit 3
View looking westerly along Corridor No. 2. Twenty Mile Park is in the background where Corridors No. 2 and 3 converge. This is a general view of the terrain along these corridors between Hayden and the Yampa River.

Exhibit 4
The east side of Steamboat Springs, Colorado, looking easterly toward the skiing resort on Mt. Werner. Corridor No. 3 is in the center of the photograph crossing from right to left.

Exhibit 5
View from near Corridor No. 2NN looking northerly from the Yampa Valley. The development around the Steamboat Ski Area is shown.

Exhibit 6
View looking westerly along the Hayden-Archer 230-kv Transmission Line at Quarry Mountain in Corridor No. 3.

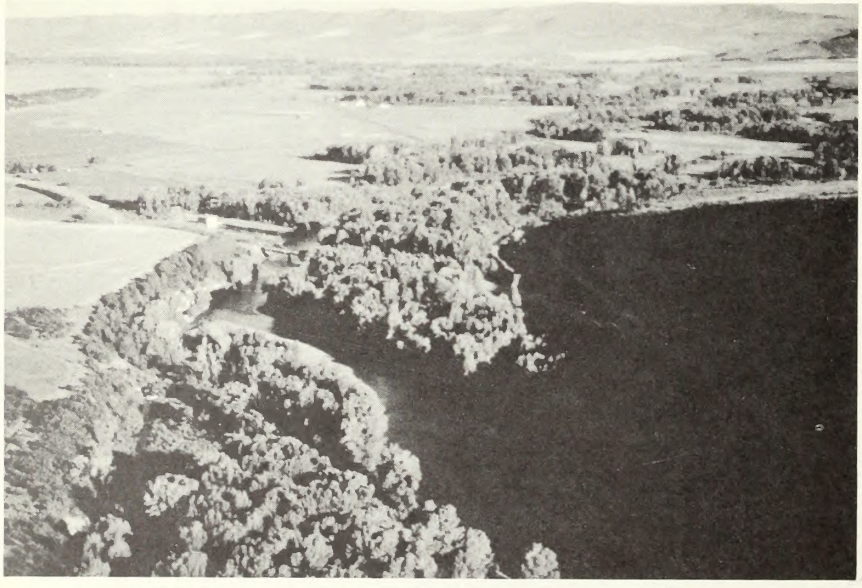


Exhibit 7
Looking west down the Yampa River from just northeast of the Hayden Substation. Corridor No. 5 crosses the river, State Highway 40, and the Denver and Rio Grande Western Railroad.

Exhibit 8
Aerial view looking north across California Park. The California Park road is in the foreground. Corridor No. 5 is near the toe of the slopes on the east side of the park, and continues in a northerly direction up the valley between Saddle Mountain on the left and Diamond Peak on the right.

Exhibit 9
Looking northeast from approximately the north end of Slater Park with Shield Mountain on the left. Corridor No. 5 goes to the left of Shield Mountain while Corridor No. 5S goes through the saddle just to the right of Shield Mountain.

Exhibit 10
Aerial view looking northwesterly from the vicinity of Colorado-Ute's proposed substation site southwest of Craig, Colorado. The Yampa River goes right to left in center of photo. Note State Highway 13-789 right-of-way in bottom to center of photo.

Exhibit 11
Aerial view looking east from Slater Creek. Slater Creek is in bottom of photo. Note large slough area in lower center of photo. U. S. Bureau of Reclamation Pothooks Reservoir site is to the north of this area on Slater Creek.

14. Comparative Discussions

There are five main and three alternate corridors to consider and compare in the Yampa Valley area. These are Corridors No. 1, 2, 3, 5, and 6 and alternates No. 2NN, 5N, and 5S.

Corridors No. 1, 2, 2NN, and 3 with their reasonable access, similar terrain, and relatively low altitudes would have comparable operation and maintenance characteristics. Line maintenance through these corridors would not be difficult. Corridors No. 5 and 6 would be more difficult to maintain since there is less access in winter, longer line lengths, and higher altitudes involved. Corridor No. 3, paralleling the existing Hayden-Archer line, would be the easiest to maintain since access exists and inspection could be combined with the Hayden-Archer line.

Visual impacts associated with Corridors No. 1, 2, 2NN, 3, 5, 5N, and 6 may require mitigation. Corridor No. 1 may require improved appearance structures from Mile 0.0 to 3.5 and helicopter construction, in addition to the improved appearance structures from Mile 17.3 to 18.0. Corridor No. 2 may require improved appearance structures from Mile 17.5 to 24.5. Corridor 2NN may also require this type of structure in miles 21.4-25.0. Corridor No. 3 will require approximately 5 miles of improved appearance structures through the Steamboat Springs area to alleviate the visual impact. Corridor No. 5 and 5N may require improved appearance structures

near the Yampa River and Corridor No. 6 may need improved appearance structures in the Craig area. It would appear that Corridors No. 1, 2, 2NN, and 3 would have the greatest amount of mitigatory costs for visual impacts. Disregarding mitigating features, construction costs in Corridor No. 1 would be less than in any of the other corridors. Construction costs in Corridors No. 2, 2NN, and 3 would be comparable. With the appearance modifications, Corridor No. 2 becomes more expensive than Corridors No. 3 and 2NN. Corridor No. 1 would be less expensive than a similarly mitigated Corridor No. 3. The greater lengths of Corridors No. 5 and 6 make these two alternatives the most expensive to construct.

Power line losses in Corridors No. 1, 2, 2NN, and 3 are comparable. Due to the much longer lengths in Corridors No. 5 and 6, the power losses would be greater.

Corridor No. 1 is the most reliable alternative since it has relatively good access, is sheltered from the wind, and does not parallel another system line. Corridor No. 3 would be less reliable than Corridor No. 1 and the latter portions of Corridors No. 2 and 2NN since it parallels the existing Hayden-Archer line throughout the area. Corridors No. 5 and 6 would be somewhat unreliable since it would be difficult to reach these corridors in winter months and longer outages could occur. A line in

Corridor No. 6 could also suffer wind damage since it is unprotected in the Plains reaches to the north.

Right-of-way in Corridor No. 5 would be the least expensive to acquire since much of the corridor is on public land and ranch lands. The private lands in Corridors No. 5 and 6 would be comparable in price. In general, due to the developments along the latter reaches of Corridors No. 1, 2NN, and 3, the right-of-way would be more difficult and more expensive to acquire than any of the other corridors.

Altitude would not have a significant constraint on any of the corridors except in the vicinity of Pilot Knob in Corridor No. 5 and near Shield Mountain in Corridor No. 5S.

Access would be difficult due to the steep slopes at the Elk River crossing in Corridor No. 1. The rough terrain in Corridor No. 5S and latter reaches of Corridor No. 5 would impede access, construction, and maintenance.

The topography in Corridors No. 1, 3, and 5 would more effectively shield a transmission line from view on main routes of travel than that in other corridors.

Although all the corridors would visually impact main travel routes at crossings, Corridors No. 2, 2NN, 5N, and 6 would be visible for longer reaches due to flat terrain.

Critical erosion areas include the Yampa River floodplain, Twenty Mile Park in Corridors No. 2, 2NN, and 3, California Park in Corridor No. 5, the higher elevations in Corridor No. 5, and the Baker Peak area in Corridor No. 6. Poor drainage is encountered in the low areas of Corridors No. 2 and 3 from the Hayden Substation to Twenty Mile Park, as well as the California and Slater Parks areas of Corridor No. 5. Soils in the Baker's Peak and Slater Creek areas in Corridor No. 6 and in California and Slater Parks in Corridor No. 5 are unstable and some areas are boggy. The east side of Quarry Mountain in Corridor No. 3 shows evidence of slides. The California Park area of Corridor No. 5 could be difficult to revegetate due to the clay-type soils. The revegetation in other corridors should not be difficult. Access roads should not be constructed on the steep, rocky slopes at the Elk River crossing in Corridor No. 1.

There are commercial quantities of coal in or near Corridors No. 1, 2, 2NN, 3, and 5. The coal deposits in Corridors No. 1 and 5 would be recoverable by underground mining and a transmission line would not interfere with the operations. Corridors No. 2, 2NN, and 3 are south of all known commercial quantities of coal which would be recoverable by surface mining. There are several small oil fields in the Craig area near Corridor No. 6.

There would be less soil disturbance in Corridor No. 3 than any of the corridors since access roads for the Hayden-Archer 230-kv transmission line are readily available. Soil disturbance in Corridor No. 1 would not be excessive since access is good. Corridors No. 1, 5, and 6 would best avoid mineral deposits.

Corridors No. 2, 2NN, and 5N pass through irrigated lands. All corridors except 5N and 5S pass through some dryland wheat farming. Corridor No. 5 would have the least effect on farm and ranch lands.

Corridors No. 1, 2, 2NN, and 3 pass through lands that are subdivisions, have plans for subdivisions, or are potential subdivisions. Corridors No. 5 and 6 pass through or near areas which are being considered for recreational home-type subdivisions. Corridor No. 5 would probably have the least effect on these types of land uses.

Corridors No. 5 and 5S infringe upon and pass through roadless land inventoried by the Forest Service. These lands cannot be developed until recommendations are made for their use.

There appears to be no significant legal constraints in any of the corridors.

Significant clearing would not be required in Corridors No. 1, 2, 2NN, and 6. Minor clearing would be required in Corridor

No. 3 in the vicinity of Quarry Mountain. Several sections in Corridors No. 5 and 5S would require some clearing through aspen and minor amounts of lodgepole pine and spruce-fir. Clearing would be limited to structure sites and that needed for access roads and electrical clearance for the conductor.

No rare and endangered species of wildlife are known to inhabit lands crossed by the corridors. California Park is a nesting area for the Sandhill crane, and waterfowl nest along the Yampa River throughout the valley. The entire area serves as winter range for elk and deer. No single corridor would have a more significant effect on wildlife than any other.

15. Corridor Recommendations

To recommend a corridor in Area A, we have to consider what has transpired since the draft of the original corridor location study was published. A draft of the original corridor location study was published and distributed for review in June 1972. At that time, public meetings were held in Steamboat Springs, Walden, and Fort Collins, Colorado, to inform the people about the proposed Hayden-Ault 345-kv Transmission Line and to receive any comments on the proposal. The meeting in Steamboat Springs drew many objections to Corridor No. 1, which the study team had initially recommended for the Yampa Valley area. The general concern was that another transmission line through this area

would have a severe visual impact, a detrimental effect on land values and an adverse impact on the rapidly expanding recreational area. Many people agreed that alternate corridors going north which would bypass the more valuable land in this area should be studied. Others suggested placing the line on a double-circuit arrangement with the existing Hayden-Archer line through the Steamboat Springs area.

As a result of comments received during this meeting, Corridors No. 5 and 6 were studied and the possibility of double-circuiting on the existing Hayden-Archer 230-kv line right-of-way through Steamboat Springs was explored.

A meeting was held in Steamboat Springs in October 1972 with the Routt County Planning Commission. The results of the studies on Corridors No. 5 and 6 were discussed and the scheme for double-circuiting through Steamboat Springs was presented. The double-circuit scheme received a favorable reaction.

The double-circuit scheme through Steamboat Springs would begin at the top of Quarry Mountain, go 4.7 miles down across the Yampa River through the existing and proposed developments and end within the Routt National Forest boundary northeast of Steamboat Springs. Existing steel lattice towers would be removed and single pole steel towers installed to carry the

Hayden-Ault 345-kv circuit and the existing Hayden-Archer 230-kv circuit. This scheme would cause Corridor No. 3 to have less impact on the environment than any of the other corridors.

To further reduce environmental impact, the Bureau of Reclamation, Tri-State, Platte River, and Colorado-Ute have agreed to a cooperative plan for transmission lines between Hayden Substation and Steamboat Springs. (The existing transmission system is shown on Exhibit No. 12.) Colorado-Ute has need for a 138-kv line from Hayden to Steamboat Springs and a 230-kv line from Hayden to Wolcott, Colorado. The Bureau of Reclamation needs a 345-kv transmission line from Hayden to Ault, Colorado, in addition to the existing Hayden-Archer 230-kv line and the Hayden-Green Mountain 138-kv line. If these transmission needs are met independently and Corridor No. 3 is used for the Hayden-Ault line, there would be five lines in the corridor from Hayden Substation to a point 9 miles southeast of Hayden and three lines in the corridor from this point to Steamboat Springs. (See Exhibit No. 13.)

The cooperative plan would be to construct a double-circuit 345-kv transmission line from Hayden Substation to Steamboat Springs parallel to the existing Hayden-Archer 230-kv line. One tentative proposal is to place the Hayden-Ault 345-kv transmission line on one side of the double circuit with Colorado-Ute using the other side for portions of their lines from Hayden to Cow Creek where their Steamboat Springs line turns to the north.

Colorado-Ute would tap the Hayden-Wolcott 230-kv line 9 miles southeast of Hayden Substation with their line to Steamboat Springs. The 3.5 miles of Hayden-Archer line from Cow Creek to the top of Quarry Mountain could remain single circuit or be removed if new double circuit line is used for this reach. This plan would eliminate the need for a line from Hayden to Steamboat Springs and a line from Hayden to a point 9 miles southeast of Hayden. (See Exhibit No. 14.)

Although the overall costs of this cooperative plan would be somewhat greater than a plan of separate single circuits and the reliability somewhat less, the reduced impact on the environment would justify the extra costs.

The main objection to Corridor No. 3 would have been the impact of an additional line paralleling the existing line through the extensive subdivision developments in the Steamboat Springs area. The double-circuiting scheme from Hayden through Steamboat Springs with improved appearance towers from Quarry Mountain through the town to the Routt National Forest boundary would have the effect of minimizing the impact on the environment.

Corridor No. 3 with the proposed double-circuit transmission scheme is recommended in Area A for the following reasons:

a. Very little impact would be created by the replacement of a single circuit line by a double-circuit line through the Steamboat Springs area.

b. Single pole improved appearance double-circuit towers would reduce the visual impact created by the existing Hayden-Archer line through Steamboat Springs.

c. Existing right-of-way and access roads would be used to the greatest extent possible.

d. Some clearing would be required in the vicinity of Quarry Mountain, and the "notched-effect" clearing of the existing right-of-way could be improved.

e. Engineering factors are comparable to other corridors.

f. The impact on the environment would be minimized from Hayden to Steamboat Springs through the cooperative transmission plan.

g. Although system reliability would suffer through the double-circuiting scheme, the area is readily accessible for repair should outages occur.

h. Although high, costs for mitigatory measures and construction are acceptable.

i. Areas necessitating helicopter construction are avoided.

j. Maintenance would be acceptable since patrolling of a separate line would be eliminated.

k. There would be no additional long-term impacts on wildlife.

l. The proposal seems to be more favorable to the public.

m. Recommendation of Corridor No. 3 must be taken into consideration in the analysis of corridors in Area B.

Corridor No. 1 would also be a viable route in this area, but due to considerations in Area B, possible subdivision development west of the Elk River, and the fact that it would impose an unnecessary impact of an additional corridor in this area, this corridor was not recommended. Also, if the Hayden-Ault line were constructed in Corridor No. 1, Colorado-Ute would still require a transmission line between Hayden and Steamboat Springs in Corridor No. 3, plus the line to Wolcott. (See Exhibit No. 15.)

Exhibit No. 12

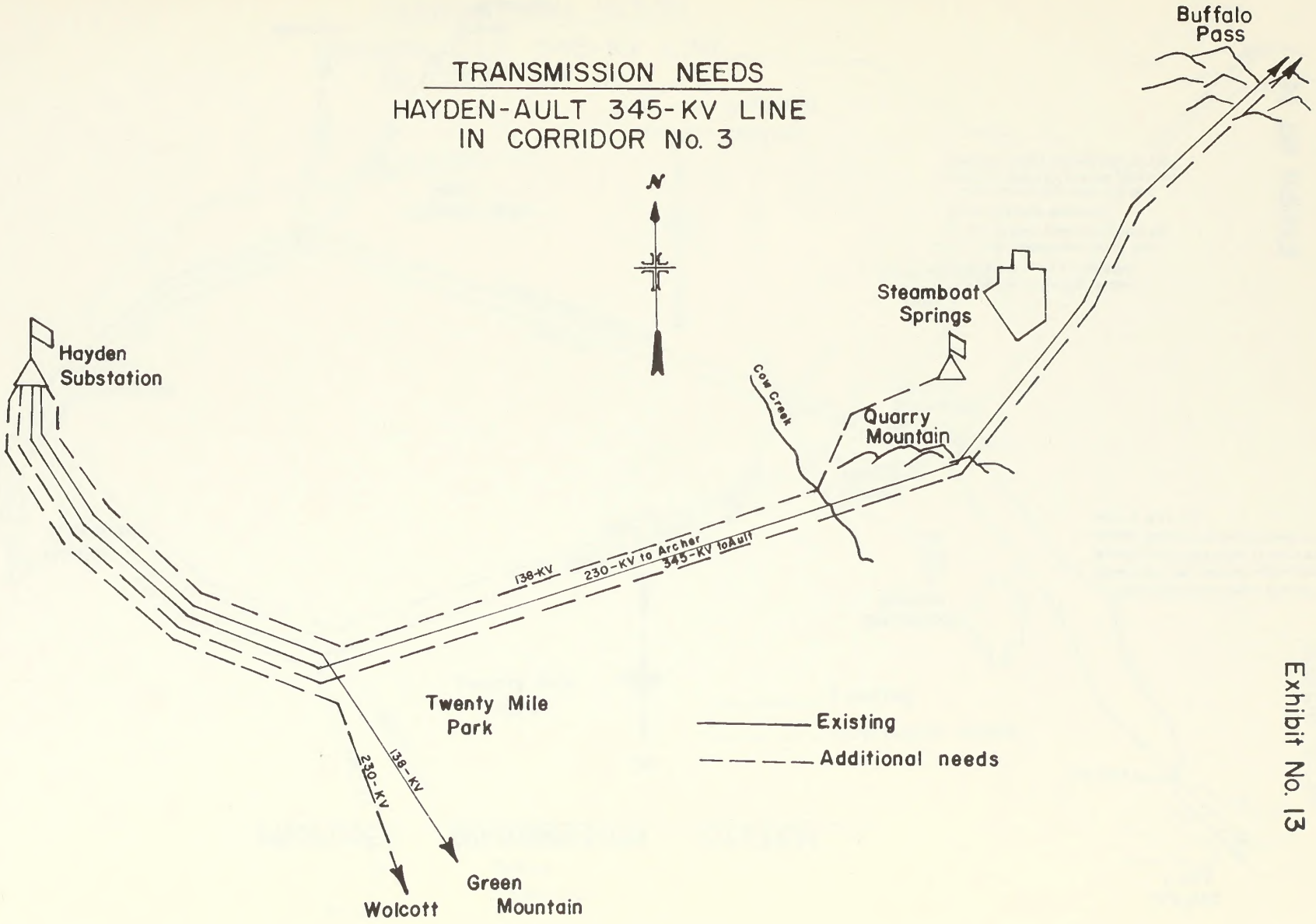
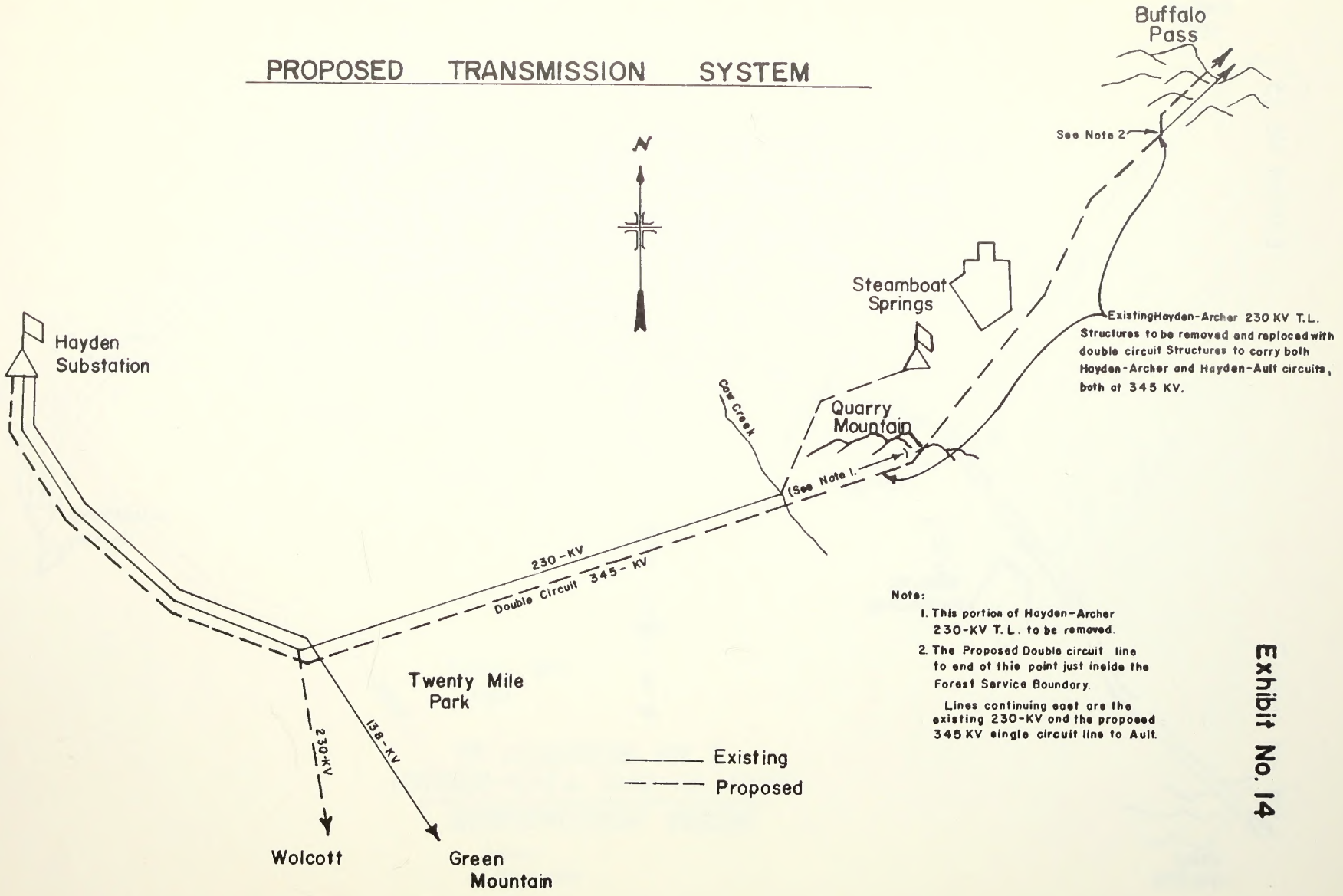


Exhibit No. 13

PROPOSED TRANSMISSION SYSTEM



Note:

1. This portion of Hayden-Archer 230-KV T. L. to be removed.
2. The Proposed Double circuit line to end of this point just inside the Forest Service Boundary.

Lines continuing east are the existing 230-KV and the proposed 345 KV single circuit line to Ault.

Exhibit No. 14

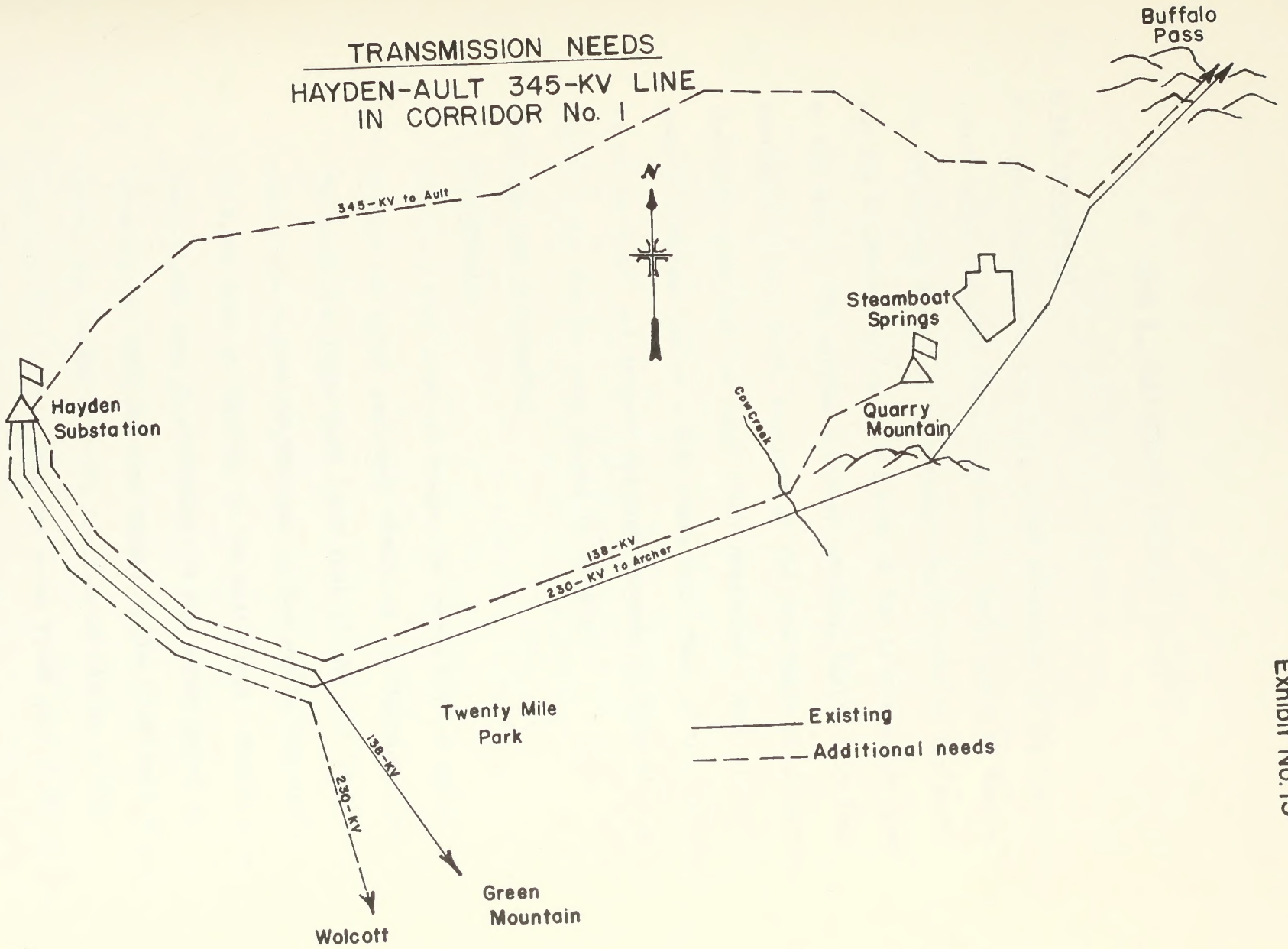


Exhibit No. 15

V. AREA B, CONTINENTAL DIVIDE

16. Area Description

This area encompasses the high, rough mountains of the Continental Divide which includes the Sierra Madre, Park, and Gore Ranges. The area being described is between Arapaho Pass on the south and the headwaters of the North Fork of the Little Snake River to the north. The extreme southern portion, Rabbit Ears Pass southward to Gore Peak, consists of the Gore Range which divides the Muddy Creek and the Yampa River drainages. Much of the area is roadless and at a high elevation. Most of this section is on the Routt and Arapaho National Forests in Colorado and the Medicine Bow National Forest in Wyoming.

17. Existing Area Environment

a. Physiography

This is a high mountain range, the north half of which divides the major east-west rivers of the United States. The elevation rises from 7,500 feet at the foot of the west slope to over 12,000 feet at the peaks, descending to 8,000 feet at the foot of the east slope. Rabbit Ears Pass, 9,680 feet in elevation, is the lowest point of crossing the Park and Gore Ranges in the south half of this area. Few passes over the Continental Divide in the northern half of the area are below 9,300 feet in elevation.

The terrain in the southern section has very steep to precipitous slopes and deep canyons. On the east side of Buffalo Pass, the relief becomes more rolling to gently sloping. The terrain of the northern section, in general, is not excessively rugged. It is characterized by broad valleys and parks sloping into timbered mountains of moderate to occasionally steep slopes.

b. Soils and Erosion

The soils of this section are diverse due to the widely varying influence of parent materials, relief, microclimate, and native vegetation. The soils in the area are primarily made up of igneous and metamorphic parental material. Sedimentary formations account for a small percentage of the makeup. Soils above the 8,500-foot level are generally sloping to moderately steep, well drained, having a thin loam surface layer over a sandy loam subsoil.

Large areas of podzol, brown podzol, and grey-wooded soils have developed under the spruce-fir timber near the 9,000-foot elevation. The soils under the conifer cover are light to medium-textured, and vary in depth from shallow to deep. Near the Divide the soils are fairly shallow.

Soils under the aspen and under grass cover in the open park areas are generally deep, dark colored and relatively high in

organic matter. They are generally loam throughout, but may have clay loam subsoils.

The brush land (oakbrush and service brush) soils are variable in texture and depth, but are usually medium textured and include soils with a medium-textured surface overlying a moderately heavy to heavy subsoil. Extensive areas of igneous rock outcrops and talus slope materials are common, especially in Green and Walton Creeks. The soil contains 20 to 65 percent stone and varies in depth from shallow to deep.

Road construction in this area would be difficult and must be carefully conducted to prevent soil loss.

Erosion is common in this section. Accelerated erosion is generally slight on well-vegetated areas. Disturbance of vegetated areas in this section will cause severe erosion. Many valleys have active cutting washes and erosion could be accelerated as a result of road construction unless these roads are properly designed and constructed.

c. Climate

The rugged topography of the Continental Divide area causes large variations in climate within short distances. At mountain summits, temperatures are low with average temperature often less than 32°F. The high altitude mountain

valleys can be extremely cold (-50°F.) at night during the winter months. The summers in this area are cool with typical mountain stations averaging around 60°F. in July. Precipitation in this area ranges from 25 inches on the lower slopes to approximately 35 inches at the higher elevations. Precipitation is almost exclusively in the form of snow. Snowfall is heavy, with 250 inches recorded in the center of the area. Light summer rain does occur but results in very small amounts of moisture. The growing season is very short.

d. Vegetation

The vegetation cover in this area includes Engelmann and blue spruce, subalpine fir, douglas fir, and lodgepole pine in the higher areas and aspen, oakbrush, and various species of sagebrush at the very low elevations. Grasses at the high elevations are principally the fescues, bromes, bluegrasses, and needle grasses. At the mid and lower elevations, grasses are primarily fescues, mountain muhly, and wheat grasses. The timber cover on the west side of Buffalo Pass is spruce-fir and is scattered. Spruce-fir timber on top of the Divide forms a unique natural snow fence pattern. Snow drifts in excess of 20 feet deep can be found on the side of these timber stringers as late as early July. Thus these timber stands have an important value for watershed protection. In the Walton and Green Creeks drainages, the

timber cover is a heavy stand of spruce-fir. At the lower elevations near Hot Springs and Soda Creek, the vegetative cover is oakbrush with extensive stands of aspen.

On the east side of the Park and Gore Ranges, between 8,000 and 10,000 feet, the timber cover is predominately lodgepole pine. Between 10,000 feet and timber line, Engelmann spruce and subalpine fir dominate with aspen intermingled. Ponderosa pine and limber pine also occur as scattered individuals or stands.

There are extensive stands of commercial timber in this section. Timber sale areas are scattered throughout this section.

e. Wildlife

The Continental Divide area serves as summer range for mule deer and elk with a scattered black bear population. There are elk-calving grounds on both sides of Soda Creek. Small mammals include the snowshoe hare, marten, marmot, weasel, coyote, and an assortment of small rodents. There are numerous avian species including blue and ruffed grouse, hawks, ducks, owls, and a wide variety of songbirds. Fish in the area are predominantly trout and can be found in most of the streams and lakes.

f. Land Uses

(1) Agriculture

There is domestic livestock grazing during the summer, primarily on National Forest land. This livestock contributes to the economy of the adjacent valleys. Several stock driveways exist in the area and have been used over the years to move livestock to and from summer ranges.

(2) Industry

Most of the Steamboat Springs ski development is located on or near Mt. Werner. Logging activity on the west slope has been minimal. Logging has been done on the east slope and will continue. The residents of North Park are the principal beneficiaries of this operation. In the section of the area just below and above the Wyoming-Colorado border and generally east of the Continental Divide, the major industry is logging. Mineral production in this section is minor. Many old claims exist, but active mining is rare. Minor quantities of zinc, copper, silver, gold, mica, and molybdenum have been removed from this area.

(3) Transportation

Only one major transportation route crosses the area, U.S. Highway 40, which traverses the Divide at Rabbit Ears Pass. The southern part of the area is accessible by an improved

dirt road over Buffalo Pass. The northern part of the area is accessible from Pearl, Colorado, via the state line road, which is an improved gravel road; from Steamboat Springs, Colorado, via County Road 129; from Encampment, Wyoming, via the Hog Park road; and from Baggs, Wyoming, via State Highway 70.

(4) Recreation

Recreation activities in this area are an important economic asset. The recreation activities consist of skiing, camping, hiking, fishing, snowmobiling, and hunting. Forest Service campgrounds exist in suitable and accessible areas. The many lakes and streams provide good fishing throughout the area. The Hog Park area just north of the Colorado-Wyoming border is being planned for recreational development. Many local and nonresident hunters use the area in the fall to hunt elk and deer. Some grouse hunting is done, mostly by residents.

(5) Special Interest Points

The following is a preliminary listing of Colorado landmarks, published by the Colorado Historical Society, which are in the vicinity of the proposed corridors.

PEARL: One of Colorado's more isolated mining camps, near the Wyoming border. It was named after the daughter of a pioneer.

RABBIT EARS PASS: 9,680 feet. Across Continental Divide between North Park and Yampa River, named for rock formations. Was landmark since days of early trappers. Was wagon road from 1895 to 1914, improved highway opened in 1919.

The mineral hot springs on Hot Springs Creek is an active thermal pool which attracts local and out-of-state residents. There is limited development at the springs, consisting of a loop road. Local interest is strong to retain this area as a geological and historical site.

According to the Colorado State Historical Society, there are no other known historical or archaeological sites.

18. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 18.0 - 23.5

This section of corridor enters at the Elk River about 6 miles north of Steamboat Springs and crosses Mad Creek. The corridor traverses benches north of Hot Springs Creek, crosses Hot Springs and Gunn Creeks and drops into Soda Creek. The terrain is rough with numerous rock outcrops. This portion of the corridor crosses private land holdings and access is limited.

Mile 23.5 - 30.0

This section of corridor goes up Soda Creek, crosses the Buffalo

Pass road and the North Fork of Fish Creek and goes to Buffalo Pass. The terrain in Soda Creek is steep, featuring rock outcrops. The terrain is fairly rugged from the South Fork of Soda Creek to the Buffalo Pass road and is sloping to rolling from the Buffalo Pass road to Buffalo Pass. Access is limited into Soda Creek drainage. This section of corridor joins the existing Hayden-Archer 230-kv line at Buffalo Pass.

Mile 30.0 - 37.0

This section of corridor goes from Buffalo Pass in a northeasterly direction down the steep east slope of the Continental Divide, crossing Little Grizzly Creek and the Buffalo Pass road to the west side of North Park. The corridor parallels the existing Hayden-Archer 230-kv transmission line throughout this section. The corridor crosses lodgepole pine stands and scattered timber-cutting areas. Aspen occurs at lower elevations. Deep soils overlay rock in this section. There are several roads in the area.

Key Considerations in Corridor No. 1, Area B

1. Proposed residential developments in the Mad Creek and Strawberry Park area
2. Limited access would require approximately 6 miles of helicopter construction and would also hamper operation and maintenance.
3. Difficult construction due to rough terrain in the section from Mad Creek to Buffalo Pass

4. Roadless area inventoried by the Forest Service in the Soda Creek Drainage
5. Elk-calving areas in the Soda Creek Drainage
6. Summer recreation use in the Buffalo Pass area and close proximity (within 3 miles) to the Mount Zirkel Wilderness area
7. Natural snow fences formed by spruce-fir timber in the Buffalo Pass area

Corridor No. 2

Mile 24.5 - 34.5

This section of corridor starts at the Yampa River and goes in a southeasterly direction paralleling Green Creek to the Continental Divide. This entire section is steep, rocky, and heavily timbered. Excavation would be difficult due to rock with a thin soil overburden and the evidence of some slide activity. Access does not exist in this section. The Green Creek area has been inventoried by the Forest Service as a roadless area.

Mile 34.5 - 47.5

This section of corridor goes from the Continental Divide at the head of Green Creek to Barber Basin, then northeasterly, crossing U.S. Highway 40 and Muddy Creek, going through Arapaho Pass to the south side of North Park. There has been timber harvesting west of Barber Basin. The timber cover is scattered with many open parks. A potential reservoir site is located in

Barber Basin. The first 6 miles of this section of corridor is in rock with a thin soil overburden. The rest of the corridor is deep, silty sand overburden. Access is good.

Key Considerations in Corridor No. 2, Area B

1. Access does not exist in the section from Mile 24.5 - 34.5, and would require helicopter construction and maintenance.
2. Visual impact from State Highway 131 on the west slope and U.S. Highway 40 on the east slope
3. Potential reservoir development in Barber Basin
4. Subdivision development in the Muddy Pass area east of U.S. Highway 40
5. Crosses a roadless area inventoried by the Forest Service

Corridor No. 2NN, Area B

Mile 25.0 - 37.0

This section of corridor begins east of U.S. Highway 40 about 4 miles south of Steamboat Springs, goes east up Walton Creek and continues northeast, crossing the Continental Divide about 2 miles north of Rabbit Ears Peak. The corridor continues in a northeasterly direction for about 2 miles on the east slope to clear-cut timber areas. Walton Creek is in a steep, rough canyon with a heavy cover of spruce-fir on the south side of the canyon. The area around the mouth of the canyon is being developed for cabin sites. On top of the drainage, the timber cover is scat-

tered with numerous parks and meadows. No access exists in this section and road construction, for the most part, would be difficult.

Mile 37.0 - 42.5

This section of line travels from the clear-cut area near Willow Park, down the east slope of the Continental Divide, crosses Cloverleaf Valley, Mexican Ridge, and ends on the west side of North Park. Soils in this section are fairly deep overlying rock. Cloverleaf Valley is an area of high ground water. Access to the area is good.

Key Considerations in Corridor No. 2NN, Area B

1. High visual impact as seen from U.S. Highway 40
2. Rugged terrain and lack of access in Walton Creek area would require about 5 miles of helicopter construction.
3. The proximity of Rabbit Ears Peak to the corridor
4. Maintenance would be difficult through most of the section.
5. Crosses an undeveloped area inventoried by the Forest Service
6. Recreational development on the west slope near Highway 40

Corridor No. 3

Mile 26.0 - 34.0

This corridor enters this area at the east edge of Steamboat Springs, goes northeasterly, paralleling the existing Hayden-Archer 230-kv transmission line, and crosses the North Fork of Fish Creek

to Buffalo Pass. Soils in this section are fairly deep, overlying rock. Some rock outcrops occur. Access is good, but some roads have been closed by the Forest Service in the Buffalo Pass area.

Mile 34.0 - 41.0

This section of the corridor is the same as Corridor No. 1, Mile 30.0 - 37.0

Key Considerations in Corridor No. 3, Area B

1. Visual impact from Steamboat Springs, the adjacent ski area, and Buffalo Pass
2. Good access exists from the Hayden-Archer 230-kv transmission line
3. Reduce the visual impact caused by the "notched-effect" clearing on the existing Hayden-Archer 230-kv transmission line
4. Operation and maintenance
5. Natural snow fences formed by spruce-fir timber in the Buffalo Pass area

Corridor No. 4

Mile 30.0 - 33.0

This section of the corridor starts at Buffalo Pass at the existing Hayden-Archer 230-kv transmission line and goes in an easterly direction down the east slope of the Continental Divide to the west edge of North Park. This corridor crosses lodgepole pine timber stands and scattered timber-cutting areas. Access is

limited off the east slope but is good on the west side of North Park.

Key Considerations in Corridor No. 4, Area B

1. Limited access
2. Steep terrain causing difficult construction

Corridor No. 5

Mile 39.2 - 42.0

The corridor enters this area at the Middle Fork of the Little Snake River, approximately 1 mile south of the Wyoming-Colorado state line. The corridor crosses the Middle Fork of the Little Snake River and goes in a northeasterly direction to the top of Elk Horn Mountain. The terrain is fairly steep but slopes uniformly. The corridor is void of any trees as it leaves the river, gradually entering aspen cover with scattered openings. Some rock outcrops occur along the river canyon. Soils along this section are generally shallow, well drained, and moderately steep. They have a sandy loam surface layer over loam filled stoney material. Access is limited.

Mile 42.0 - 48.4

This section of corridor goes from Elk Horn Mountain to Whiskey Creek, and the intersection with Corridor No. 5S at Mile 45.8. The corridor then goes northeasterly to the Continental Divide. The terrain is fairly rough down the east side of Elk Horn Mountain and is fairly gentle and gradually sloping from Whiskey

Creek to the Continental Divide. Heavy stands of spruce and fir trees are encountered with scattered stands of aspen throughout this section. High on the east-facing slope of Elk Horn Mountain, rock rubble was noted on the surface. Access is fairly good. Soils in this section are generally deep, well drained, sloping to moderately steep having a thin loam surface layer over a sandy loam subsoil containing 40 percent stone. The elevation at the Continental Divide crossing is 9265. A sheep driveway runs north and south along the Continental Divide. A timber sale, now in progress, extends from Whiskey Park to the Continental Divide and north to the Wyoming-Colorado border. Timber will be clear-cut in small patches.

Mile 48.4 - 51.0

This section of corridor goes east from the Continental Divide down through the South Fork of Hog Park Creek to the Encampment River and the intersection with Corridor No. 6. The terrain on the east slope of the Continental Divide is fairly steep and contains heavy stands of lodgepole pine intermixed with spruce-fir. The terrain flattens into an open park at the South Fork of Hog Park Creek. The soils are similar to those on the western side of the Divide. Erosion is present on the steep slope of the Divide.

Mile 51.0 - 62.6

This section of corridor goes east across the Encampment River,

the state line road, and Ryan Park, then parallels Damfino Creek and the state line road to a high ridge which reaches an elevation of just over 10,000 feet. The corridor then parallels Line Creek on the north side to the Continental Ditch.

Several small timber sales are in progress from Ryan Park to Damfino Park. Some of these sales will be clear-cut in small patches and some will be selectively cut.

The Encampment River area has high recreational use and further recreational development can be anticipated.

The state line road, which is an improved gravelled road, generally stays within the corridor boundary from the Encampment River to about Mile 61, at which point it veers south and goes down Beaver Creek. Access in this section is good. The terrain in this section for the most part is not too rugged. Soils are generally the same as those just west of the Encampment River. There are planned and active timber sales throughout this section.

Mile 62.6 - 64.0

This section of corridor is in Big Creek Park and crosses the Continental Ditch, Line Creek, Carney Ditch, Albert Clauson Ditch, the Forest boundary, Beaver Creek, Hans Clauson No. 2 Ditch, and ends at County Road No. 6W. Access is fairly good in

this section.

Key Considerations in Corridor No. 5, Area B

1. Crossing undeveloped areas inventoried by the Forest Service
2. Inaccessible during winter months
3. High recreation use along the Encampment River with further development anticipated
4. Length of corridor at higher elevations affecting construction and operation and maintenance
5. Heavy timber cover and timber sale areas
6. Visual impact in Big Creek Park and from County Road No. 129
7. Access road construction

Corridor No. 5S

Mile 40.4 - 44.0

This section of corridor starts at the Middle Fork of the Little Snake River and goes up a fairly steep aspen-covered ridge, reaching an elevation of 8890 feet. It then travels through an opening across Pioneer Creek. From Pioneer Creek, it goes over the West Fork of Whiskey Park Creek, Whiskey Park Road and Whiskey Park Creek to the intersection with Corridor No. 5. The vegetative cover is mostly aspen. Access to the corridor is poor. Rock outcrops occur on the benches of the Middle Fork of the Little Snake River. Generally, soils are

similar to those in Corridor No. 5 in this vicinity.

Key Considerations for Alternate Corridor No. 5S, Area B

1. Limited access, both summer and winter
2. Crosses undeveloped areas inventoried by the Forest Service
3. Visual impact from Whiskey Park
4. Heavy aspen cover

Corridor No. 6

Mile 52.8 - 57.1

This section of corridor crosses the Little Snake River and the Wyoming-Colorado boundary line, turns easterly and crosses Cottonwood Creek and Cherry Draw, traverses a side hill and crosses the Roaring Fork of the Little Snake River and continues traversing a side hill to the top of an aspen-covered plateau.

The corridor is visible from the county road in most places but has a ridge as a backdrop. Access is limited in this section. Nearly all of this section is in sage and oakbrush. Cottonwood Creek and Roaring Fork of the Little Snake River have aspen stands on the north-facing slopes.

Mile 57.1 - 69.9

This section of corridor crosses an aspen-covered plateau, the north fork of the Little Snake River and begins a gradual climb toward the Continental Divide. The corridor goes through a

small saddle at the north end of Elk Horn Mountain, drops down and crosses Rose Creek and goes up a steep ridge to the top of a plateau near the Continental Divide. The corridor parallels the Continental Divide across the plateau and crosses Whiskey Creek, Whiskey Creek Park to Hog Park road and climbs to the Continental Divide and the fire line sheep driveway. The corridor follows the fire line sheep driveway for approximately a mile then drops down and crosses the South Fork of Hog Park Creek. From this point the corridor travels southerly into Colorado to the intersection with Corridor No. 5 at Mile 51.0 near the Encampment River.

The Hog Park recreational area is north of the corridor near the end of this section. Access is limited in this section of the corridor and non-existent through Rose Creek to the high plateau east of Rose Creek.

Soils in this section are generally deep, well drained, having a thin loam surface layer over a sandy loam subsoil containing 40 percent stone. Depth to granitic bedrock varies. Rock-type footings can be expected along the steep ridge east of Rose Creek, otherwise no foundation problems are anticipated.

Key Considerations in Corridor No. 6, Area B

1. No access in the Rose Creek area could necessitate about 1.5 miles of helicopter construction.

2. Visual impact in the Three Forks and Encampment River areas
3. Inaccessibility in winter months affecting construction and operation and maintenance
4. Heavy timber cover
5. Recreational development in the Encampment River Valley

Exhibit 16
Looking westerly from the Buffalo Pass road down the Soda Creek drainage. This is typical vegetation and terrain on the lower western slope of the Continental Divide. Elk Mountain is shown in the far left background. Corridor No. 1 goes through this area.

Exhibit 17
Lake Agnes and Baker Mountain. Rabbit Ears Peak is in the background and Corridor No. 2NN passes over the Divide just behind Rabbit Ears Peak.

Exhibit 18
Looking southwesterly from Buffalo Pass down Fish Creek. Two structures of the Hayden-Archer 230-kv Transmission Line can be seen in the center of the photograph. Corridors No. 1 and 3 cross the pass near the existing line. Corridor No. 4 starts easterly from this point.

Exhibit 19
View looking west at the head of Green Creek on the Gore Range Divide. Corridor No. 2 follows this creek from the Yampa River to the top of the Divide.

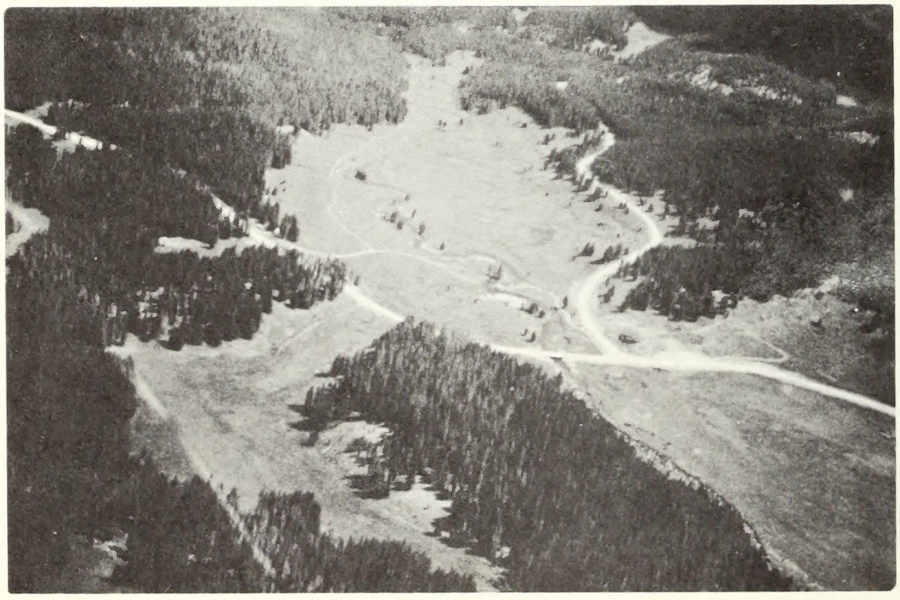


Exhibit 20
View looking down on the Encampment River and Commissary Park. The state line road crosses from left to right and is the main access for all traffic from this junction east to North Park. Corridors No. 5 and 6 intersect at this point.

Exhibit 21
Aerial view looking west along the Wyoming-Colorado border from the Three Forks area showing where Corridor No. 6 crosses into Wyoming. The Wyoming-Colorado border goes along the left edge of photo.

19. Comparative Discussions

There are eight corridors and alternates in the Continental Divide area to compare. All of the corridors would have severely reduced construction seasons due to the high altitudes. Construction costs for the western portions of Corridors No. 1, 2, and 2NN would be high since helicopter construction would be required. Access is limited and severe impacts would result from road construction. Corridor No. 3 would be less expensive since there is existing access and no helicopter construction would be required. Corridor No. 5 would probably not require helicopter construction, but the greater length at relatively high altitudes through heavy timber cover would increase construction costs. Construction costs in Corridor No. 6 would be greater than those in the adjacent portions of Corridor No. 5 since

Corridor No. 6 would require about 1½ miles of helicopter construction and would be in rougher terrain at generally higher altitudes. With their reasonable access, Corridors No. 3 and 5 and the eastern portions of Corridors No. 1, 2, and 2NN would not involve high mitigatory costs.

Difficult operation and maintenance would be encountered on Corridors No. 2 and 2NN since there would be limited access all year. Corridors No. 5 and 6 would be somewhat less difficult, although remote and inaccessible during winter months. Corridor No. 3 would be the least difficult and would have resulting lower costs since there is existing access and maintenance which could be combined for the two lines.

Since Corridors No. 3 and 4 are the shortest in length in this area, power line losses would be least. Corridors No. 1, 2, and 2NN are comparable in length and would all have similar power losses. Greatest line losses would occur in combined Corridors No. 5 and 6.

Corridor No. 3 would be less reliable since it parallels the existing Hayden-Archer line and crosses Buffalo Pass with its record of heavy icing. Corridor No. 1 would be more reliable than Corridor No. 3 since it parallels an existing system line for a lesser part of its length. Corridors No. 2, 2NN, 5, and 6

would be considered more reliable since they do not parallel an existing line. The Buffalo Pass area in Corridor No. 3 has a history of ice loading although all of these corridors in this area could experience icing to some degree.

Right-of-way costs would be comparable in Corridors No. 2NN, 4, 5, 5S, and 6 since they are almost exclusively on public lands. Right-of-way would be more expensive in the eastern portions of Corridor No. 2 and the western portions of Corridors No. 1 and 3 since private land is crossed.

All of the corridors have difficult access in the western reaches due to rough terrain, with the exception of Corridor No. 3, which is accessible. The lack of accessibility will result in difficult construction and maintenance. Corridors No. 2 and 2NN will visually impact U.S. Highway 40 and State Highway 131 due to long, exposed slopes. Corridors No. 1 and 3 would visually impact the Buffalo Pass area which has recreation use during summer months.

Corridors No. 5 and 6 would have visual repercussions from State and County roads and recreation activities along the Encampment River.

The entire Continental Divide area is a critical erosion area since any place the thin surface soil is disturbed, severe

erosion can occur. Revegetation in the higher areas of all of the corridors would be difficult and would require special revegetation techniques to ensure success. Foundation difficulties are comparable in all corridors since all include rocky areas. There are no significant mineral developments which would constrain any of the corridors.

Corridors No. 1 and 3 would have the greatest social significance. Corridor No. 1 passes near residential developments in the Elk River and Mad Creek areas and near proposed residential developments in the Strawberry Park area. The western portion of Corridor No. 3 would be in the proximity of the Steamboat Springs area. Corridor No. 2 would possibly impact the potential site for the Barber Creek Reservoir and subdivisions near Highway 40 and Muddy Creek. Corridors No. 5 and 6 would have a somewhat lesser social impact although there is recreation use along the Encampment River. Corridors No. 2, 2NN, 5 and 5S cross roadless land inventoried by the Forest Service which cannot be developed until further use recommendations are made and environmental impact statements are prepared. Corridors No. 3 and 6 do not include any lands of this type.

Corridors No. 1 and 3 pass near the Mount Zirkel Wilderness area, but do not infringe on the boundaries. Corridor No. 1 may infringe on the southernmost edge of the Mad Creek roadless area

which will be studied for possible inclusion into the wilderness system.

Care must be taken in the fragile fringe areas of alpine tundra which may occur in the higher elevations in the corridors. Corridors No. 1 and 3 include the timber stringers on Buffalo Pass which function as natural snow fences and are considered to be valuable assets to the watershed.

Corridors No. 5 and 6 would have the most clearing of vegetation since they are covered with heavy stands of lodgepole pine, spruce-fir, and aspen through this area. Corridor No. 1 would involve the least clearing of vegetation. On the western slope of Buffalo Pass, Corridor No. 1 would require less clearing than the aspen-covered section of Corridor No. 3, while on the eastern slopes, Corridors No. 1, 3, and 4 would have comparable amounts of required vegetative removal. The western slopes of Corridors No. 2 and 2NN have fairly heavy timber cover, but are not as heavily timbered on the top and eastern slopes.

There are no areas of habitat known to be occupied by rare and endangered species on any of the corridors. The Soda Creek area in Corridor No. 1 is used for elk calving and the entire area serves as summer range for deer and elk.

20. Corridor Recommendations

Corridor No. 3 is recommended for the following reasons:

1. The portions of corridor which would contain double-circuit construction would not appreciably increase impacts on the environment. The existing visual impact caused by the "notched-effect" clearing of the existing transmission line could be reduced.
2. The corridor would not pass through roadless areas inventoried by the Forest Service for study areas for possible inclusion into the wilderness system.
3. Construction and maintenance would be less difficult in this corridor than any of the others.
4. Very little access road construction would be required.
5. The corridor would not have a significant effect on wildlife.
6. Minimal clearing would be required.
7. Although reliability would be affected by paralleling the existing transmission line, the corridor is more readily accessible than other corridors.
8. The corridor agrees with the recommendations made in Area A.

VI. AREA C, NORTH PARK

21. Area Description

North Park, which is a large high altitude park, covers most of this area. The town of Walden, North and East Sandhills Natural Areas, Arapaho National Wildlife Refuge, and many large ranches with scattered hay meadows are within the area.

22. Existing Area Environment

a. Physiography

North Park is a high mountain valley in the form of a large basin surrounded by mountains. Elevations range from 8,000 feet to 8,500 feet. Several long ridges extend into the park area with elevations up to 9,500 feet. Only two prominent land features of any size occur in the valley proper--Delaney Butte and Sheep Mountain, both less than 9,500 feet in elevation. The Michigan and Canadian Rivers, along with many creeks of the area, flow together on the north side of the valley into the North Platte River. Independence Mountain, at the north side of the valley, rises to an elevation of 9,723 feet. Pinkham Mountain, just east of Independence Mountain, rises to just over 9,200 feet. The North Platte River flows north between these two mountains and into the North Gate Canyon.

b. Soils and Erosion

The soils are largely derived from colluvial-alluvial deposits with interspersed areas of residual soils from

a wide variety of geological materials. Areas of saline and solonetzic soils occur around the Michigan and Canadian Rivers. The soils in North Park are dominantly light to medium textured and often gravelly. Depth ranges from shallow to moderately deep. The soils in the sand dune areas of North Park are dry mountain sands and the sand blows quite easily if not vegetated. Drainage problems are common on the mountain park hay meadows. The soils in the Independence Mountain area are generally deep, well drained, having a thin loam surface layer over a sandy loam subsoil containing 40 to 65 percent stone. Granitic rock outcrops are common.

Erosion in North Park is generally slight to moderate. Where grass cover is not present, severe water erosion damage has occurred. Roads near the sandhills are badly eroded where vegetation was removed. Erosion in the mountainous area north of the Park is basically the same as that in Areas B and D.

c. Climate

The North Park area has long, cold winters and relatively cool summers with a short growing season (56 days). The mean annual temperature is 36°F. Summer temperatures may reach the mid-nineties and the minimum winter temperature has dropped to -49°F. The area precipitation is usually

less than 15 inches per year with a yearly average at Walden of 10 inches per year. Most of the precipitation occurs as snowfall with an average snowfall of 46 inches each winter.

d. Vegetation

The native vegetation in North Park is dominantly sagebrush with an understory of grasses and various forbs. In the sandhills area, there are scattered stands of aspen. On Independence Mountain, the major vegetative cover includes lodgepole pine, aspen, spruce, and various mountain grasses basically the same as those found in Areas B and D.

e. Wildlife

Elk and deer use the North Park area for winter range. A small number of antelope are year-round residents. Small mammals include coyote, badger, fox, weasel, skunk, beaver, muskrat, rabbit, and small rodents. Many waterfowl such as loons, grebe, herons, sandhill cranes, geese, ducks, and shore birds use North Park as a nesting site. Owls are the typical birds of prey. Songbirds are numerous. Fish are found in most of the streams and are predominately of the trout family. There is a fish hatchery southwest of Walden.

f. Land Uses

(1) Agriculture

Agriculture is the mainstay of the country in North Park and is limited to livestock and hay production. The flood plains are irrigated and used for hay production and pastures. A small part of the hay produced is shipped to market as a cash crop with the remainder used by local ranchers for livestock production.

(2) Industry

There is a fluorspar mine on the extreme north side of the park. Coal is found in some places throughout the valley, but the only operating mine was closed several years ago and there are no known plans to resume coal mining activities at this time. There are small oil fields north of Walden. Further exploration for oil is continuing with results not yet known. One of the largest sawmills in Colorado and one small stud sawmill are located at Walden.

(3) Transportation

Access to the area is via Colorado Highway No. 125, which crosses the park from north to south, and Colorado Highway No. 127, which enters the park from the north. Colorado Highway No. 14 is being upgraded

at the present time and will probably become an important transportation link. At this time, there is no commercial passenger carrier available. The Union Pacific Railroad provides freight service to the area, and there is a landing field on the north side of Walden for small private aircraft.

(4) Recreation

Recreation in this area is primarily hunting and fishing. Much fishing is done by the public at North, South, and East Delaney Buttes Lakes and at Lake John. The large-size fish inhabiting Lake John attract many fishermen. Recreational facilities have not been developed and most recreation opportunity is gained by individual effort. Most recreation facilities in the region are outside the general area of North Park.

(5) Special Interest Points

The North Sand Hills is classified as a Natural Area by the Bureau of Land Management and the East Sand Hills has been set aside as a Natural Area by the Colorado Board of Land Commissioners. These are considered to be unique geological features. According to the State Historical Society, there are no known historical or archaeological sites in North Park.

The Colorado Game and Fish Department indicates there are remnants of wickiups in the area north or east of the North Sand Hills which were used by Indians, early explorers or trappers in the area.

23. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 37.0 - 66.6

This section of corridor enters the west side of North Park and goes in a northeasterly direction crossing the North Platte River and paralleling the existing Hayden-Archer 230-kv transmission line. About 4 miles north of Walden, Colorado, the corridor turns easterly and goes to the foot of the Medicine Bow Range on the east side of North Park. From the area north of Walden, the corridor departs from the Hayden-Archer 230-kv transmission line. This corridor passes through private and Bureau of Land Management lands. The East Sand Hills are just south of the corridor. Access to the corridor is good. An oil field northeast of Walden is crossed. An airfield is located about 2 miles northeast of Walden.

Key Considerations in Corridor No. 1, Area C

1. Visual impact from State Highway 125, Delaney Butte recreation area, and East Sand Hills Natural Area
2. Crossing irrigated hay fields
3. North Platte and Michigan Rivers crossing

4. Recreation use of leased lands near west side of North Park
5. Oil fields and airfield north of Walden
6. Construction difficulties through creek bottoms

Corridor No. 1N

Mile 60.2 - 65.7

This corridor starts at Mile 60.2 on Corridor No. 1 and goes northeasterly to the east side of North Park at the foot of Shipman Mountain. The corridor goes through low rolling hills composed of sandstone with a thin overburden of silty sand. Access is good.

Key Considerations in Corridor No. 1N, Area C

Same considerations in Corridor No. 1, Area C, except Corridor No. 1N bypasses the East Sand Hills Natural Area

Corridor No. 1S

Mile 39.0 - 64.8

Corridor No. 1S starts near the west side of North Park at Mile 39 of Corridor No. 1. The corridor travels in a northeasterly direction, crosses the North Platte River, runs along the northern edge of the Arapaho Wildlife Refuge, and crosses the Illinois River and the Union Pacific Railroad tracks 1½ miles south of Walden. It then proceeds across the Michigan River to the east side of North Park touching the north edge of the East Sand Hills.

Key Considerations in Corridor No. 1S, Area C

1. Arapaho Wildlife Refuge
2. Fish hatchery
3. Town of Walden
4. East Sand Hills Natural Area
5. North Platte, Illinois, and Michigan Rivers and railroad crossings
6. Coal deposits

Corridor No. 2

Mile 47.5 - 79.0

Corridor No. 2 enters this area near Arapaho Pass and crosses North Park in a northeasterly direction. The corridor passes Ironclad Mountain, crosses State Highway 14, the Arapaho Wildlife Refuge, and State Highway 125. The corridor then crosses the Illinois, Michigan, and Canadian Rivers, and travels south of the East Sand Hills Natural Area. The East Sand Hills area continues to the foot of the Medicine Bow Range near Ute Pass. The east side of North Park has a large undeveloped coal deposit. There is very thin overburden on a soft sandstone formation. The terrain is rolling hills and access is good.

Key Considerations in Corridor No. 2, Area C

1. River, creek, and irrigated meadow crossings
2. Arapaho Wildlife Refuge
3. East Sand Hills Natural Area

4. Visual impact as seen from highways

5. Coal deposits

Corridor No. 2NN

Mile 42.5 - 58.0

This corridor begins on the west side of North Park and goes northeasterly across Grizzly Creek. It enters Arapaho Wildlife Refuge and intersects State Highway 125 near Larand, joining Corridor No. 2 at Mile 63.5 about 1 mile northeast of Larand. This corridor crosses low sandstone hills with a thin overburden and access is good.

Key Considerations in Corridor No. 2NN, Area C

1. Arapaho Wildlife Refuge

2. Visibility from State Highway 125

3. Coal deposits

4. River and creek crossings

Corridor No. 2S

Mile 47.5 - 80.0

Corridor No. 2S begins at Arapaho Pass at Mile 47.5 of Corridor No. 2. The corridor crosses Indian Creek and passes south of Ironclad Mountain. After crossing Arapaho Creek, it travels southeast of Spicer Peak, intersects State Highway 125, and traverses near the southern edge of the Arapaho Wildlife Refuge. The corridor continues over Owl Ridge, crosses State Highway 14 and the Michigan and Canadian Rivers, passes ½ mile

south of the East Sand Hills and joins Corridor No. 2 at Mile 79.0 on the east side of North Park.

Access is good. The corridor crosses coal reserves on the east side of North Park.

Key Considerations in Corridor No. 2S, Area C

1. Avoids Arapaho Wildlife Refuge
2. Visual impacts as seen from highways
3. River, creek, and irrigated meadow crossings
4. East Sand Hills Natural Area
5. Coal deposits

Corridor No. 3

Mile 41.0 - 68.0

Corridor No. 3 enters this area at the west edge of North Park and goes in a northeasterly direction across Chedsey Creek and the North Platte River. It passes 1½ miles southeast of the Delaney Buttes recreation area, running along a ridge and crosses the Michigan River, Union Pacific Railroad, State Highway 125, and the Canadian River. The corridor passes ½ mile north of the North Sand Hills before it leaves Area C near the north end of the Colorado State Forest at the east side of North Park. This is an area of rolling hills with irrigated hay meadows in the creek bottoms. The last 2 miles of this section is in a blow-sand area. Excavation for the

most part would not be difficult except in the creek bottoms. Access is good.

Key Considerations in Corridor No. 3, Area C

1. River and creek crossings, irrigated meadows, railroad and highway crossings
2. Visual impacts from State Highway 125, Delaney Buttes recreation area, and North Sand Hills Natural area

Corridor No. 4

Mile 33.0 - 63.3

Corridor No. 4 enters Area C near Crosby Creek on the west edge of North Park. The corridor travels east across Doran, Darling and Grizzly Creeks, State Highway 14, and passes 1 mile south of MacFarland Reservoir, the Arapaho Wildlife Refuge, then crosses State Highway 125. The corridor continues east across Illinois River, Owl Ridge, Owl Creek, the Michigan River and State Highway 14. The corridor leaves the North Park area 1 mile north of Gould near the western edge of the Colorado State Forest. The routing is through rolling hills. This is an area of sandstone, with a thin silty sand overburden. There are some abandoned coal mines in the area. Excavation will probably encounter some coal in minor quantities. Access is good.

Key Considerations in Corridor No. 4, Area C

1. Visual impacts from State Highway 125 and 14
2. River, creek, and irrigated meadow crossings
3. Coal and mineral deposits
4. Arapaho Wildlife Refuge

Corridor No. 5

Mile 64.0 - 75.7

This corridor enters Area C at County Road No. 6W, travels easterly across the South Fork of Big Creek and goes up the west slope of Independence Mountain. The corridor then goes easterly down the steep east slope of Independence Mountain, crosses State Highway 125 and the Routt National Forest boundary, and ends at the North Platte River. The corridor is in view of County Road No. 6W for approximately 1½ miles before it goes into the South Fork of Big Creek. Numerous decomposed granite rock outcrops are in the section from the South Fork of Big Creek to the east edge of Independence Mountain. Some foundations can be expected to be in rock. Access is very poor from the West Fork of Big Creek to the top west edge and on the east face of Independence Mountain. Access would be fair via an unimproved logging road which leads from County Road No. 6W and enters the corridor at the top west edge of the mountain. There is heavy timber cover on the top of Independence Mountain. From the toe of the east slope of the

mountain to the North Platte River terrain is flat and open. There is some cabin site development in the vicinity of the North Platte River on the Ginger Quill Ranch properties.

Key Considerations in Corridor No. 5, Area C

1. Visual impact from State Highway 125 crossing
2. Difficult access in winter months and high winds on Independence Mountain affecting construction and maintenance
3. Cabin site development at the North Platte River crossing

Exhibit 22
Mexican Ridge as viewed from the west looking into North Park in the background. Corridor No. 4 crosses this ridge and enters North Park near the center of the photograph. Corridor 2NN drops off the ridge into North Park at the far right center of the photograph.

Exhibit 23

Arapaho Pass as viewed from the east. Corridor No. 2 crosses this pass going from Muddy Creek into North Park. Bear Mountain is in the right background.

Exhibit 24

Walden, Colorado, as seen from the south. Corridor No. 1S is at the bottom of the photograph crossing from left to right. Corridors No. 1 and 3 are in the flat land in the background. This is typical terrain in the North Park area.

Exhibit 25
Ease side of North Park. The East Sand Hills are in the foreground and the North Sand Hills are in the background. Corridors No. 1 and 2 cross near the edge of the East Sand Hills. Corridors No. 3 and 1NN are just north of the North Sand Hills. View is looking northwesterly along the foot of the Medicine Bow Range.

Exhibit 26
Aerial view looking east from Wills Reservoir on the east edge of Independence Mountain. Pinkham Mountain and the Medicine Bow Range are in the background. Colorado State Highway 125 comes from Encampment, Wyoming, through this valley heading to Cowdrey and Walden, Colorado, to the south. The North Platte River is at the base of the slopes in the background and flows north winding its way to Casper, Wyoming. Corridor No. 5 is along the left side of the photograph.

24. Comparative Discussions

There are five corridors in the North Park area, and four alternate branches to compare. The cost of mitigating environmental impacts within these corridors is about the same. All of the corridors cross State Highway 125 and the various rivers and creeks within North Park. Corridors No. 1 and 1S are within 2 to 3 miles of Walden. Construction costs per mile would be higher in Corridor No. 5 because it crosses Independence Mountain, although the corridor is shorter in this area. All other corridors are comparable in costs. All of the corridors except Corridor No. 5 have good access.

Operation and maintenance difficulties would be less in Corridor No. 3 and portions of Corridors No. 1 and 1NN because of the sharing of the maintenance with the Hayden-Archer line. Corridor No. 5 would be the most difficult due to limited access and rough terrain. All other corridors would be about the same.

Right-of-way acquisition would be about the same for all corridors except for Corridors No. 1 and 3. These two corridors cross much Bureau of Land Management lands.

All corridors cross North Park at about the same altitude except Corridors No. 4 and 5. Corridor No. 4 reaches an elevation of over 9,000 feet in the vicinity of Owl Mountain

between the Illinois and Michigan Rivers. Corridor No. 5 crosses Independence Mountain at an elevation of 9,100 feet. The visual impact is greatest along Corridors No. 1, 1S, 2, 2S and 3 because of the flat terrain.

Erosion in Corridors No. 1, 1N, 1S, 2, and 3 would be more critical in the North and East Sandhill areas. These areas erode quite easily when vegetative cover is removed. Revegetation is critical in the Sandhills areas. Coal deposits exist in Corridors No. 1, 1S, 2, and 2S, but no recent development has been done in the fields. There is an oil field development in Corridor No. 1 north of Walden.

There is a private recreation development in Corridors No. 1 and 3. The Delaney Butte Recreation area is on the northwest edge of these corridors. In Corridor No. 5, near the North Platte River crossing, there are cabin developments. In Corridors No. 1, 2, and 3, the corridors pass near the North and East Sandhills Natural areas. The Arapaho Wildlife Refuge is crossed by Corridors No. 1S, 2 and 2NN. Corridor No. 1S passes near a fish hatchery.

The sand dune ecosystem found in Corridors No. 1, 1N, 1S, 2, 2S, and 3 is very fragile. No other unique ecosystem is affected by the corridors. Corridor No. 5 would involve the most clearing, primarily heavy stands of lodgepole pine and

aspen on the top and the western slopes of Independence Mountain. Corridor No. 4 would have some scattered clearing of lodgepole pine on the east side of North Park. The other corridors are relatively free of timber and would require little clearing.

The North Park area is used extensively by waterfowl for nesting and by migratory avian species and serves as winter range for elk and deer.

25. Corridor Recommendations

Corridor No. 3 is recommended in this area for the following reasons:

a. This corridor would have acceptable construction costs.

b. The corridor would skirt the North Sandhills Natural Area, fish hatchery and Walden.

c. There could be lower right-of-way acquisition costs.

d. Mineral development in North Park is avoided.

e. The Arapaho Wildlife Refuge is avoided.

f. Little clearing would be necessary.

g. Maintenance would be eased by paralleling the Hayden-Archer line.

h. This corridor avoids connection difficulties caused by roadless area considerations to the east.

Corridor No. 4 is not recommended due to considerations east of Area C, although in North Park, it is a satisfactory corridor. Corridors No. 1, 1S, 2, and 2S encroach upon the East Sandhills Natural Area. Corridors No. 1S, 2, and 2NN all cross the Arapaho Wildlife Refuge. Corridor No. 1S is very near a fish hatchery and the town of Walden. Corridors No. 1S, 2S, 2NN, 2 and 4 cross coal deposits. Corridor No. 1N would be a satisfactory corridor but is not recommended due to considerations in areas east of North Park. Corridor No. 3 is located in a manner to cause the least impact upon the environment and man-made features of the valley. The recommended corridor also agrees with the recommendations made in Area B, Continental Divide, and Area D, Medicine Bow Range.

VII. AREA D, MEDICINE BOW RANGE

26. Area Description

This area of the proposed corridors includes the main portion of the Medicine Bow Range. Rawah Wilderness, Shipman Park, Ute Pass, Stub Creek, North Michigan Recreation Area, Montgomery Pass, portions of the Colorado State Forest, and Routt and Roosevelt National Forests are in this area.

27. Existing Area Environment

a. Physiography

This range of mountains divides the watersheds of the North Platte River and the Laramie River. Elevation varies from 8,000 feet at the east and west base to 10,000 feet on the north (Wyoming State line) to 13,000 feet in the Rawah Wilderness, and 10,285 feet at Cameron Pass in the south. This mountain range is a series of rough peaks on the south which progresses to a more gentle-type terrain on the north. The west and east slopes drop abruptly into North Park and the Laramie River valley. This range is an important watershed and furnishes a high percentage of the water in the Platte River system.

b. Soils and Erosion

The soils in this area are similar to those found in Area B, Continental Divide. The soils are diverse due to the widely

varying influence of parent materials, relief, climate, and native vegetation. Large areas of podzol, brown podzol, and grey-wooded soils have developed under the spruce-fir cover at elevations ranging from 9,000 feet to timber line near Montgomery Pass on the east side of Medicine Bow Range. Weakly-developed podzolic and grey-wooded soils occur under the ponderosa pine and lodgepole pine cover at elevations of 8,000 to 8,500 feet. The soils under the spruce-fir are light to medium textured, and vary in depth from shallow to deep. Soils under aspen and under grass cover in the open park areas (Shipman Park) are generally dark colored and relatively high in organic matter. Extensive areas of rock outcrops and talus slope materials are common in Area D.

Erosion is common in this area, especially in the Rawah Wilderness and in the high alpine areas. Accelerated erosion is generally slight on well-vegetated areas. Many valleys have active cutting washes. If the vegetation is removed, erosion is accelerated and severe damage occurs.

c. Climate

The Medicine Bow climate is similar to the climate found in the Continental Divide area. Typified by very cold temperatures in winter; short, cool summers and rapidly changing weather, the precipitation varies between 40 inches on the south to

20 inches on the north and lower slopes.

d. Vegetation

Major tree species include Engelmann and blue spruce, subalpine fir, douglas fir, and lodgepole and ponderosa pine. Timber type is largely dependent upon elevation and exposure. Aspen is found over most of the area in the montane zone and oakbrush occurs on the east side of the Medicine Bow Range at lower elevations. Grasses at high elevations are principally fescues, bromes, bluegrasses, and needle grasses. A variety of alpine flora exists on Montgomery Pass. At the lower elevations, grasses are primarily fescues, mountain muhly and wheat grasses.

e. Wildlife

Until timber line is reached, game animals, small mammals, fish, upland game birds, and songbirds in this area are representative of those found in Area B. Above timber line ptarmigan and pica may be found. Alpine tundra also serves as summer range for elk and a few deer.

f. Land Uses

(1) Agriculture

This area is an important summer range for livestock producers of North Park and the Laramie River valley.

(2) Industry

There has been little industrial development in this

area. There is an operating fluorspar mine near the Colorado-Wyoming State line. There has been some logging along the west slope and north end of the area. Extensive cut-over areas are found throughout. Present logging operations are mostly confined to State Forest lands. Logging is an important industry of the North Park residents. Commercial recreation has not been developed and consists mostly of guide service of nearby residents.

(3) Transportation

No commercial transportation facilities exist. The only access is Cameron Pass (State Highway No. 14) which is closed during the winter and State Highway No. 127 through the northern portion of this area.

(4) Recreation

Recreation facilities exist in the Cameron Pass, North Michigan Lake, and Stub Creek areas. These facilities include camp and picnic grounds and fishermen's parking. These sites have been developed by the State of Colorado and the Forest Service. The Rawah Wilderness is situated in the center of the Medicine Bow Range in the higher elevations. Access to the wilderness is primarily from the east by trails developed by the Forest Service. Camping, fishing, hiking, hunting, and

sight-seeing are the principal recreational opportunities of the Wilderness.

(5) Special Interest Points

According to the State Historical Society, there are no known historical or archaeological sites within this area. The Colorado Historical Society has prepared a preliminary list of landmarks which includes the following areas:

CAMERON PASS: Crosses Medicine Bow Range between Cache La Poudre and Michigan Rivers at 10,285 feet. Discovered by R. A. Cameron, Founder of Fort Collins, in 1870, although believed used earlier by trappers and Indians. Used as early mail and freight route into North Park. Improved highway opened in 1926.

The Rawah Wilderness is an area classified under the Wilderness Act of 1964.

One of the most scenic areas of the Roosevelt National Forest is the Shipman Mountain, Ute Pass, and Shipman Park area.

28. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 66.6 - 78.7

The corridor enters this area on the eastern edge of North Park

near Sand Creek, and goes east up Sand Creek to Ute Pass. From Ute Pass the corridor goes northeast around the north end of Shipman Park. From Shipman Park the corridor continues in a northeast direction to the Laramie River. The corridor is through rough hills and would cross some very rugged canyons on the east slope of the Medicine Bow Range. A coarse granular material of granite origin occurs on the east slope of Medicine Bow Range. The steep canyons have many rock outcrops. There is limited access to the area.

Key Considerations in Corridor No. 1, Area D

1. Limited access and rugged terrain may necessitate helicopter construction.
2. Corridor crosses a roadless area inventoried by the Forest Service.
3. Recreation potential and high scenic value of Shipman Park
4. Visual impact as seen from the Laramie River Valley

Corridor No. 1N

Mile 65.7 - 77.6

This corridor goes from the east side of North Park in a northeasterly direction, crossing the Medicine Bow Range approximately 2 miles north of Shipman Mountain and continues to Jenkins Creek. The corridor then goes east to McIntyre Creek and intersects Corridor No. 1 at Mile 78.1. The entire route is over very rough

hills. The west slope of the range is very steep. The east slope drops off more slowly and has deep canyons. The corridor crosses the range at an elevation of 10,600 feet. Shallow soils overlay the rock in this area. A coarse granular soil of granitic origin is evident on the east slope, especially in the lower elevations. There are rudimentary roads on the east slope. The west slope has no access.

Key Considerations in Corridor No. 1N, Area D

1. No access on west side of Medicine Bow Range would necessitate approximately 3 miles of helicopter construction.
2. Heavy timber cover through most of the corridor
3. Difficult construction through most of the corridor
4. Crosses the Medicine Bow Range at a high elevation
5. Scenic value near Shipman Mountain

Corridor No. 1NN

Mile 75.0 - 85.0

This alternate corridor starts at Mile 75.0 of Corridor No. 3 at Fish Creek. The corridor goes in a southeast direction crossing Pole, Stuck, the Three Forks of Grace, Forrester, and Jenkins Creeks, joining Corridor No. 1 at Mile 77.6. The corridor crosses clear-cut and old burn areas for a short way, then goes through very scattered trees and large open areas. The overburden is a granular material of granitic origin.

Key Considerations in Corridor No. 1NN, Area D

1. Stream crossings
2. Visual impact from Laramie Valley
3. Clear-cut and old burn areas, scattered trees and large open areas

Corridor No. 2

Mile 79.0 - 90.5

Corridor No. 2 enters this area at the east edge of North Park, goes in a northeasterly direction, and crosses East Sand Creek to Ute Pass. From Ute Pass the corridor goes in a southeasterly direction, traverses the south portion of Shipman Park, and crosses McIntyre Creek. It then passes south of Glendevey, crosses Stub Creek and proceeds to the Laramie River. Most of the area is undeveloped. Access to the area is difficult since the only road is a jeep trail to Ute Pass.

Key Considerations in Corridor No. 2, Area D

1. Recreation potential and high scenic value of Shipman Park
2. The corridor goes through an undeveloped area inventoried by the Forest Service.
3. Proximity of the corridor to the Rawah Wilderness area
4. Recreational development around Old Glendevey and Stub Creek
5. Limited access would necessitate approximately 8 miles of helicopter construction.

Corridor No. 3

Mile 68.0 - 82.5

Corridor No. 3 starts at the east edge of North Park near the North Sand Hills, and goes in a northeasterly direction in rough terrain to the top of the Medicine Bow Range. From this point, Corridor No. 3 continues northeast across the Colorado-Wyoming border to the Laramie River. The corridor parallels the existing Hayden-Archer 230-kv line through Area D. The corridor crosses relatively open, old burn and timber-cut areas on the east slope of the Medicine Bow Range. Access roads are available along the Hayden-Archer transmission line.

Key Considerations in Corridor No. 3, Area D

1. Good access
2. Rough terrain and possible mining claims on the west slope of the Medicine Bow Range
3. Corridor goes through old timber sales and burn areas and young-tree growth.
4. Possibility of reducing the visual impact caused by the "notched-effect" clearing of the existing Hayden-Archer 230-kv transmission line
5. Laramie River crossing

Corridor No. 3S

Mile 72.5 - 82.2

This corridor starts at Mile 72.5 of Corridor No. 3 at the top of the Medicine Bow Range and goes northeast to the Laramie River. This is an area of old burns and timber-cut area. The slopes are fairly gentle. The Laramie River floodplain is narrow at the point where the corridor crosses. The soil is a granular-type material of granitic origin. Access is good.

Key Considerations in Corridor No. 3S, Area D

1. Old burns, timber-cuts, and open areas
2. Good access
3. Crossing of the Laramie River

Corridor No. 4

Mile 63.3 - 75.0

This corridor enters on the west edge of the Colorado State Forest and goes east up the North Michigan River, passing south of North Michigan Lake, and goes over Montgomery Pass at 11,000 feet. From Montgomery Pass, the corridor continues east to Trap Lake and to the headwaters of the Cache La Poudre River. This section of Corridor No. 4 goes through the North Michigan area, where the Colorado Game and Fish Department has built a public fishing reservoir and has plans for future development of recreation facilities. The entire area has heavy recreation development. There are numerous camps run by various organizations, several dude ranches, a commercial campground, and extensive recreation developments constructed by the Colorado Division of Parks and

Outdoor Recreation on the west side of Montgomery Pass. The entire area is summer range for elk and deer.

Montgomery Pass is in the historic summer range for Big Horn sheep. Access is limited on the North Michigan Lake side.

Key Considerations in Corridor No. 4, Area D

1. Visual impact from North Michigan Lake recreational area, extensive recreational developments on the west side of Montgomery Pass, and camp ground developments east of Montgomery Pass
2. Historic summer range for Big Horn sheep in the Montgomery Pass area
3. Fragility of the alpine ecosystems in the Montgomery Pass area
4. Short construction season in high elevations
5. Access is limited and would require approximately 10 miles of helicopter construction.
6. Crosses roadless area inventoried by the Forest Service

Corridor No. 5

Mile 75.7 - 89.5

The corridor enters this area at the North Platte River, approximately one mile south of the Wyoming-Colorado state line, just inside the Routt National Forest, and goes easterly paralleling and crossing Camp Creek on the north side. The corridor

crosses Camp Creek State Highway No. 127, and the Union Pacific Railroad and goes to the top of the Medicine Bow Range. From this point, the corridor goes into the Roosevelt National Forest and bears in a southeasterly direction crossing Boswell, Johnson, and Fish Creeks as well as several unimproved dirt roads. The corridor continues to a point of intersection with Corridor No. 3 at Mile 76.8 and the existing Hayden-Archer 230-kv transmission line. Corridor No. 5 ends at this point. There are remnants of mining activity near the North Platte River, but no sign of recent activity is evident. There is an active fluorspar mine south of the corridor in the south Pinkham Mountain area.

Generally, the soils in this section are well drained having a thin, fine sandy loam surface layer with a sandy loam subsoil containing about 40 percent stone. Granitic outcrops occur.

Access is good from the North Platte River to State Highway 127. An improved gravelled road leads from Highway No. 127 at Mountain Home in Wyoming and crosses the corridor on the east slope of the Medicine Bow Range.

Key Considerations in Corridor No. 5, Area D

1. Visual impact from State Highway 127 and the North Platte River

2. Good access and cut-over areas from the North Platte River to State Highway 127 and limited access from the highway to the intersection of Corridor No. 3

Exhibit 27

North Michigan Lake. This lake has been developed by the Colorado Division of Parks and Outdoor Recreation for recreational purposes. Corridor No. 4 is to the right of the photograph and goes over Montgomery Pass which is in the center background.

Exhibit 28
Montgomery Pass as viewed from the east. Corridor No. 4 goes through this pass as it crosses the Medicine Bow Range.

Exhibit 29
Looking westerly along Corridor No. 4 toward Montgomery Pass which is behind the wooded hill in the background. The entire area is heavily timbered.

Exhibit 30
Top of the Medicine Bow Range just north of Shipman Mountain. View is looking westerly along Corridor No. 1N. North Park is in the background.

Exhibit 31
View from Ute Pass looking westerly down Sand Creek. Corridor No. 1 comes to the right of the Sand Dunes and up Sand Creek. Corridor No. 2 comes from the left past the Sand Dunes and up Sand Creek. Both Corridors go through Ute Pass.

Exhibit 32
Shipman Park as seen from the northwest. Ute Pass is in the lower right of the photograph. Corridor No. 1 skirts the park on the lower left and Corridor No. 2 crosses the park from the bottom center to left center of the photograph.

Exhibit 33
Aerial view of Ute Pass looking easterly. The East Sand Hills are in the foreground. Sand Creek is on the right of the photograph with Shipman Park in the right background. Corridors No. 1 and 2 go up Sand Creek, through Ute Pass and skirt Shipman Park.

Exhibit 34
View from north end of Shipman Park looking easterly. This is typical terrain east of Shipman Park. Corridor No. 1 goes through the area shown.

Exhibit 35
Aerial view looking southwest showing the vicinity of the North Platte River crossing of Corridor No. 5. Ginger-Quill Ranch is in the left center of photograph.

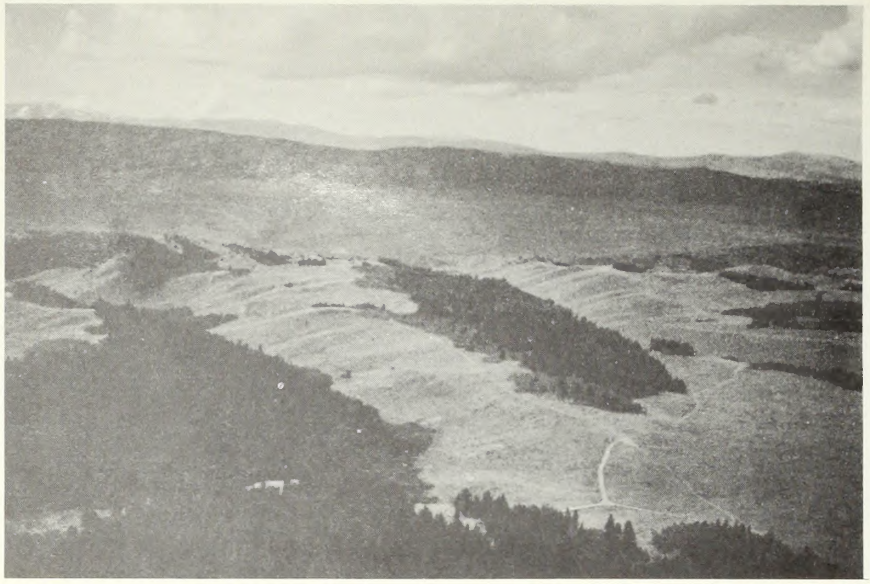


Exhibit 36
Aerial view looking westerly from Camp Creek just north of Pinkham Mountain. The North Platte River is hidden from view just below the wide flat area in upper center of photo. Corridor No. 5 passes through this area.

Exhibit 37
View looking east to the top of the Medicine Bow Range from State Highway 127 on Corridor No. 5.

29. Comparative Discussions

The costs of mitigating environmental impacts would be greatest in Corridors No. 1, 1N, 2, and 4. In Corridors No. 1 and 2 helicopter construction would be needed to avoid road building through Shipman Park. Corridor No. 4 would require helicopter construction over Montgomery Pass. Corridors No. 1NN, 2, 4, and 5 would be the most expensive to construct. Corridors No. 1N, 3, and 3S would be less expensive. Corridor No. 1 would be the least expensive to construct.

Operation and maintenance would be difficult on Corridors No. 1, 1N, 2, and 4. Corridors No. 1NN, 3, 3S, and 5 are comparable and would be less difficult. Power line losses due to length would be less on Corridors No. 1, 1N, 2, and 4 with Corridors No. 1NN and 5 with longer lengths involved, having the largest loss.

Corridors No. 1 and 1N would probably be the most reliable of the corridors in this area. Corridors No. 2 and 4 would be less reliable due to access. Corridors No. 1NN, 3S, and 5 would be less reliable since they all parallel the Hayden-Archer line for portions of their length. Corridor No. 3 would be even less reliable since it parallels the Hayden-Archer line for its entire length. Corridors No. 2 and 4 are remote and should an outage occur, it could be of longer duration since the areas are not readily accessible.

Right-of-way acquisition costs would be less for Corridors No. 2 and 4 because they cross public lands. Corridors No. 1, 1N, 1NN, 3S, and 5 cross public land for the most part, while Corridor No. 3 crosses two-thirds public land and about one-third private holdings.

Corridors No. 1, 1NN, 3, 3S, and 5 are at lower altitudes than the other corridors in the Medicine Bow Range and would have fewer difficulties attributable to high altitudes such as corona loss and ice loading.

Corridors No. 1N, 2, and 4 are in rougher terrain with limited access. Corridor No. 5 is in the least rough terrain while the remaining corridors are comparable. Rough terrain would result in construction and operation difficulties. The higher elevations of the Medicine Bow Range have the potential to become critical erosion areas since any time the thin surface soil is disturbed, severe erosion can occur. Poor foundations may be encountered in all of the corridors at the Laramie River crossings and in Corridors No. 1 and 2 in the meadows around Shipman Park. Corridors No. 1, 1N, 2, and 4 would have limited access.

Corridor No. 5 passes north of a fluorspar mine in the Pinkham Mountain area. There is no known active mining on the other

corridors. Corridor No. 1 passes on the north edge, and Corridor No. 2 on the south edge of the Shipman Park area which has eminent scenic qualities. Corridor No. 2 travels through the Stub Creek area which includes the recreation development near Glendevey. Corridor No. 4 goes through the southern edge of the North Michigan recreation area and through the recreation development near Cameron Pass. There are ranches in Corridors No. 1, 1N, 1NN, 2, 3, and 3S which would be crosses. It would appear that Corridors No. 1, 2, and 4 would have the greatest social significance of the alternative corridors considered.

Corridors No. 1, 2, and 4 go through the east Rawah, Shipman, and Montgomery Pass roadless areas which have been designated by the Forest Service for study for possible inclusion into the National Wilderness Preservation System. Corridors No. 1N, 1NN, 3, 3S, and 5 do not enter or go near any undeveloped areas inventoried by the Forest Service.

Since the Montgomery Pass area included in Corridor No. 4 encompasses some fragile alpine tundra, care must be taken in this area since it would be slower to recover from intrusion.

Heavy clearing would be required in Corridors No. 1, 1N, 2, and 4 with less clearing needed in Corridor No. 5. Corridors No. 1NN, 3, and 3S would necessitate the least amount of vegetative removal

since these corridors cross old timber sales, burn areas, and young-tree growth.

30. Corridor Recommendations

Corridors No. 1, 2, and 4 pass through the east Rawah, Shipman, and Montgomery Pass roadless areas which have been designated by the Chief of the Forest Service for study for possible inclusion into the National Wilderness Preservation System. As a result of this action by the Forest Service, Corridors No. 1, 2, and 4 cannot be considered as viable alternative corridors. Earl L. Butz, Secretary of Agriculture, stated on January 18, 1973, "Those areas that are included on the final list for study will be withheld from development activities which might impair their wilderness characteristics until an intensive study is completed on formal wilderness classification."

Corridors No. 1N, 2 and 4 are in more rugged terrains, with difficult access, which would require that portions of a line be constructed by helicopter.

Corridors No. 2 and 4 are in high recreation use areas. Corridors No. 1, 2, and 4 are in heavy timber cover and pass through the highly scenic country around Shipman Park and Montgomery Pass.

Corridor No. 1N goes north of Shipman Park and would avoid the roadless area and the scenic area around Shipman Park crossed by

Corridor No. 1. However, Corridor 1N would be in rough terrain with limited access and would require some helicopter construction. Although the longest route in this area, Corridor No. 5 has fairly good access, limited clearing, and crosses the Medicine Bow Range at a lower elevation than the other corridors. However, this corridor does not follow the recommendations of Areas A, B, and C and would not tie the line together with the previous recommendations.

Corridor No. 1 is one of the shortest routes through this area. The corridor crosses the Medicine Bow Range at a favorable elevation and the terrain is not excessively rugged. Some additional access would be required with, possibly some helicopter construction. Corridor No. 1 would be the best corridor from an engineering standpoint alone, however, there would be more impact on the environment than would occur in Corridors No. 1NN, 3, and 3S.

Corridors No. 1NN, 3 and 3S would cause less environmental impact than the other corridors and would meet the objective of the best balance between economic, engineering, environmental, and land use factors. Corridors No. 1NN, 3, and 3S are therefore recommended in Area D, Medicine Bow Range.

VIII. AREA E, FRONT RANGE

31. Area Description

This area of the proposed corridors includes the southern portions of Wyoming, Bull Mountain, Sand Creek Pass, Cherokee Park, Red Feather Lakes, Halligan Reservoir, and the Crown Point-Poudre Canyon. The southern portion is predominately on the Roosevelt National Forest and the northern portion is a checkerboard ownership of approximately 60 percent private lands and 40 percent lands administered by the Forest Service and Bureau of Land Management. Union Pacific Land Resources Corporation is the largest private landowner in the Roosevelt National Forest.

32. Existing Area Environment

a. Physiography

This area is a long ridge extending from the Rocky Mountain National Park on the south to the Laramie Plains on the north. The area is bounded on the west by the Laramie River and on the east by the Great Plains. Elevation varies from 13,000 feet at the south end of the area to 8,000 feet on the north end at the Laramie River Valley and 5,500 feet on the east slope.

The Laramie River, the Cache La Poudre River, and associated tributaries constitute the principal drainages. In this area the mountainous terrain has very steep to precipitous

slopes, deep canyons, intervening mesas and outwash fans with rolling to gently rolling topography. On the Colorado-Wyoming line in the Laramie River Valley, the terrain is rolling to gently rolling topography with large areas of fairly flat terrain.

b. Soils and Erosion

The soils in this section are representative of those found in Areas B and D, and will not be repeated here.

Erosion is basically the same in this area as in Areas B and D. Sheet erosion is moderate on the sagebrush and juniper areas and severe on the sparsely-covered lands. Sheet and gully erosion are especially prevalent near Red Mountain Pass along the Colorado-Wyoming line and near the eastern edge of Roosevelt National Forest.

c. Climate

The Front Range average yearly temperature is near 40°F. The summers are moderate although temperatures in the high 90°'s are recorded regularly in the lower areas. The winters are long and severe for the most part; a minimum of -54°F. has been recorded at Red Feathers Lakes. Precipitation fluctuates widely, ranging from 15 inches in the north to as much as 40 inches in some of the higher mountain areas such as Crown Point. Much of the precipitation occurs as snowfall.

High winds are common in the northern portions of the Front Range area.

d. Vegetation

The vegetative cover in this area varies from Engelmann and blue spruce, subalpine fir, douglas fir, ponderosa and lodgepole pine in the higher elevations to aspen, ponderosa pine, juniper, bitterbrush, and sagebrush at lower elevations. Grasses at the higher elevations are mainly fescues, bromes, blue grasses, and needle grasses. At the lower elevations the grasses are principally fescues, mountain muhly, and wheat grasses.

e. Wildlife

Large game animals in this area include elk, black bear, mule deer, and antelope. Extensive game management areas have been developed by the Colorado Division of Wildlife in the Cherokee Park area. There are active plans to enlarge this Game Management area, which is primarily for elk and deer, to cover approximately 50,000 acres.

Small mammals include bobcat, coyote, fox, beaver, skunk, badger, weasel, rabbit, and small rodents. Hawks, eagles and falcons represent the birds of prey. Prairie chicken and blue grouse are the primary upland game birds with ptarmigan found above timber line. Songbirds representative

of the montane zone are typical. Most fish found in the lakes and streams are of the trout family. Colorado Game and Fish Department operates the Poudre River Rearing Unit on the Poudre River near Rustic.

f. Land Uses

(1) Agriculture

Hay is raised in irrigated areas along the Laramie River. Livestock is pastured in the higher elevations in the summer. Lower elevations to the north are used for livestock grazing year around.

(2) Industry

Timber production is important only as a local economic asset.

(3) Transportation

The only major access is via Colorado State Highway No. 14, which is in the southern portion of the area. This highway is closed to vehicular travel during winter months. Several improved graveled roads cross the area in the northern portion.

(4) Recreation

Recreation is one of the prime uses of this area. Big game hunting for deer and elk and trout fishing are good throughout. There are several summer home developments, notably at Red Feather Lake which has about 450

homesites and will have approximately 2,000 homesites in the area within 20 years. Several summer homesite developments are found in the Poudre River Valley. There are now approximately 300 homesites, with this number expected to increase to 600 in 20 years. The Cameron Pass-Chambers Lake area has developed camp grounds which receive heavy use in the summer. The Forest Service also has several public camp grounds along the Cache La Poudre River and in the Red Feather Lake area. The Cache La Poudre River Canyon has been an important recreation area for northeast Colorado residents for many years. With improvement of Colorado Highway No. 14 in the canyon, linking Fort Collins with Walden, this area will gain additional significance. There is a roadless area inventoried by the Forest Service between the Poudre Canyon and the Rocky Mountain National Park. The Greyrock-Livermore area was also inventoried by the Forest Service as a roadless area.

(5) Special Interest Points

Chimney Rock, festoon cross-stratifications and other sedimentary features of the Casper formation are located on the Chimney Rock Ranch about 19 miles south of Laramie, Wyoming. This formation is well-exposed, unlike most examples of festoon cross-stratification.

The Department of Anthropology at the University of Wyoming has indicated there are a number of archaeological sites along the Colorado-Wyoming border south of Laramie, Wyoming. According to the Colorado Historical Society, there are no known historical or archaeological sites in this area in Colorado.

33. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 78.7 - 81.0

This section of corridor enters the area at the Laramie River and goes northeast, entering the Roosevelt National Forest on the west side of Sand Creek Pass. About 1/2 mile of the route would cross hayfields in the Laramie River Valley with the remainder across sagebrush flats. There are two private aircraft landing fields near this section.

Mile 81.0 - 87.0

This section of corridor goes from the west side of Sand Creek Pass to Boulder Ridge. The terrain is open rolling hills with timbered slopes to 10,000-foot elevation on each side of the corridor. Overburden in this area is a granular granite origin material. Some rock outcropping does occur. Access is fairly good throughout this section.

Mile 87.0 - 94.0

This section of corridor goes from Boulder Ridge, staying south

of Sheep Creek past Eaton Reservoir, crosses Sheep Creek and the county road east of Trout Creek, and continues to the hill north of Sheep Creek. Eaton Reservoir is used for fishing and camping. In this area there is a thick overburden composed of a granular granite origin material. Some rock outcrops do occur. Access is good.

Mile 94.0 - 104.0

This section of corridor goes southeast from the north side of Sheep Creek, crosses Cherokee Park Game Management Units, and continues to the lower end of Cherokee Park. The area is hilly, rocky country with varying depths of overburden. There is access into the area, but access roads would have to be constructed along the right-of-way.

Mile 104.0 - 117.0

This section of corridor goes southeasterly from Cherokee Park and crosses the North Fork of the Cache La Poudre River and the Cherokee Park Game Management Unit. The corridor continues in a southeasterly direction passing south of Halligan Reservoir to the North Fork of the Cache La Poudre River. The corridor then goes east, crossing the river, and continues to U. S. Highway 287. Access is good.

The area is rough near Cherokee Park and changes to rolling hills further east. Crossing the North Fork of the Cache La Poudre

River is very rough and will probably require a long span. There is a private dude ranch at Trail's End and there are recreation facilities at Cherokee Park Game Management Areas and Halligan Reservoir. There are a few summer homes in this section.

Key Considerations in Corridor No. 1, Area E

1. Visual impacts in the Laramie River Valley and the Sand Creek Pass and Bull Mountain area along the Cherokee Park Road and U. S. Highway 287.
2. Difficult construction across the Laramie River through hayfields and possibly in the rougher terrain near Cherokee Park.
3. There is a checkerboard-type ownership throughout this section with alternating public and private lands.
4. Possible private recreation development by Union Pacific Land Resources Corporation near Eaton Reservoir.
5. Game management units and associated recreational facilities.
6. Scenic drive along the Cherokee Park Road.

Corridor No. 2

Mile 90.5 - 100.5

Corridor No. 2 enters this area at the Laramie River south of Glendevey and goes east crossing the Laramie River and then up Deadman Creek to the top of the ridge. From the ridge, Corridor No. 2 goes northeast for about 8 miles crossing Deadman Park, and

goes southeast off a steep incline to a point just south of Bellaire Lake. There is a camp ground at Bellaire Lake. This is an area of rock with varying depths of overburden. Access is good through Deadman Park and Bellaire Lake, but no access is available on the west side of this section of corridor.

Mile 100.5 - 139.5

The corridor continues east from Bellaire Lake and passes about 2 miles south of the recreational developments at Red Feather Lakes. It intersects the Red Feather Lakes road, and passes near Log Cabin and north of Haystack Butte. The corridor again crosses the Red Feather road and goes north of Livermore Mountain. At Livermore Mountain the corridor goes southeast across the northern edge of the Greyrock-Livermore roadless area, the North Fork of the Cache La Poudre River and intersects U.S. Highway 287 about 2 miles south of Owl Canyon.

In the Red Feather Lakes area there are extensive subdivisions of summer and year-round homes. Land values are high in this area with prices ranging from $1,000 to $4,500 per acre.

Key Considerations in Corridor No. 2, Area E

1. Visual impact from the Laramie River Valley, around Bellaire Lake and Red Feather Lakes, the Red Feather Lake Road, and U. S. Highway 287.
2. Rough terrain and limited access in the Deadman Creek area would necessitate approximately 4 miles of helicopter construction.

3. High land values, recreation-use area, and extensive subdivisions in the Red Feather Lake area.

4. The corridor crosses the northern edge of the Greyrock-Livermore roadless area inventoried by the Forest Service.

Corridor No. 2E

Mile 135.0 - 139.8

This corridor goes easterly from Mile 135.0 on Corridor No. 2, crosses the North Fork of Cache La Poudre River, and continues to U. S. Highway 287 at Owl Canyon. The principle terrain features are low, sharp breaking ridges running north to south. The soil is sandy overlaying sandstone at varying depths. Access is fair to good.

Key Considerations in Corridor No. 2E, Area E

1. Visual impact from U. S. Highway 287.

Corridor No. 3

Mile 82.5 - 101.5

This section of the corridor enters the area north of the Colorado-Wyoming state line at the Laramie River and parallels the Hayden-Archer 230-kv transmission line. The corridor crosses the Laramie River, the Laramie River Road and continues northeasterly to Lindsey Creek. The corridor then goes easterly approximately 1 mile north of Red Mountain and crosses Sand Creek near the Chimney Rock Ranch, crosses Antelope Creek, and continues to Lone Tree Creek. This is an area of sandstone with a thin, silty overburden. Access is good.

Mile 101.5 - 107.5

This section goes easterly from Lone Tree Creek crossing Gooseberry Creek, the Boulder Ridge road on top of Boulder Ridge, and ends at the foot of the east slope of Boulder Ridge. The east and west slopes are fairly steep containing scattered timber. The overburden is a coarse granular material of granite origin. Access is good.

Mile 107.5 - 113.2

This section of the corridor goes east from the foot of the east slope of Boulder Ridge to U. S. Highway 287. The land is a long, gentle slope from north to south. The soil is sandy, overlaying sandstone. Access is good.

Key Considerations in Corridor No. 3, Area E

1. Laramie River, hayfields near Sand Creek, and creek crossings.
2. Very good access throughout the section.
3. Strong winds.
4. Visual impact as seen from U. S. Highway 287 and Laramie River road.
5. Possible subdivisions development on Chimney Rock ranch properties.
6. Difficult construction on Boulder Ridge slopes.
7. Possible unidentified archeological sites.

Corridor No. 3S

Mile 82.2 - 99.8

This section of corridor enters the area at the Laramie River about 11 miles south of Woods Landing, Wyoming, crosses the Laramie River and the Laramie River road, and continues northeast to Horse Ranch Pass between Dempsey Dome and Bull Mountain. The corridor then crosses Shell Creek, drops off Bull Mountain and continues east crossing Sand Creek road 1 mile south of Chimney Rock. The corridor crosses Sand Creek and continues to the Boulder Ridge road. Access is good with the exception of the Bull Mountain area. On the west end of this section shallow sandy soils overlay sandstone. On the east end soils are composed of granular material of granitic origin.

Mile 99.8 - 117.6

This section of the corridor goes from the Boulder Ridge road easterly along Trail Creek to the Cherokee Park road, then goes southeasterly to U. S. Highway 287. This is an area of gentle slopes with some rock outcrops. Access is good. The soils in this section are granular material of granitic origin. The soils overlay rock at varying depths. The remainder of this section is rock with varying depths of overburden.

Key Considerations in Corridor No. 3S, Area E

1. Fairly good access through the corridor except around Bull Mountain, along Trail Creek and portions between Cherokee Park Road and U. S. Highway 287.

2. Visual impact as seen from U. S. Highway 287, other roads and the Laramie River.
3. Laramie River and creek crossings.
4. Mixed private and public ownership in a checkerboard pattern.
5. Chimney Rock geological area.
6. Potential and existing recreational developments.
7. Possible unidentified archeological sites.
8. Possible subdivision development on Chimney Rock Ranch properties.

Corridor No. 3SN

Mile 112.5 - 114.4

This alternate corridor starts at Mile 112.5 on Corridor 3S and goes northeast across Fish Creek to U. S. 287.

Key Considerations in Corridor No. 3SN, Area E

1. Crossing Fish Creek.
2. Open meadow owned by Two Bar Ranch.
3. Visual impacts from U. S. 287.

Corridor No. 4

Mile 75.0 - 83.0

Corridor No. 4 enters this area one-half mile north of Trap Lake and goes in a northeasterly direction across the Cache La Poudre River, the West Fork of Sheep Creek about 5 miles north of Rocky

Mountain National Park and continues to a point about one-half mile south of Crown Point.

The corridor passes about 2 miles south of the highly developed Chambers Lake recreation area. There is little access in this section.

Mile 83.0 - 110.7

From Crown Point, the corridor continues in a northeasterly direction until it crosses Little Beaver Creek. At this point the corridor turns east and passes north of Quigley Mountain. The corridor crosses the South Fork of the Cache La Poudre River, Pendergrass Creek, Poverty Flat, Stove Prairie road and passes just north of Mount Ethel. The corridor continues east along Lewistone Creek, goes through Log Canyon, crosses the Charles Hansen Canal, the Colorado and Southern Railroad, the Cache La Poudre River and intersects U. S. Highway 287. The terrain is rough with limited access.

Key Considerations in Corridor No. 4, Area E

1. Cache la Poudre River crossing.
2. High elevation at Crown Point crossing.
3. Rough-terrain may necessitate helicopter construction of up to 25 miles.
4. Visual impacts as seen from the Mummy Range, Rist and Stove Canyon roads, and U. S. Highway 287.

5. Scenic areas with existing and potential recreation use.

6. The corridor goes through a roadless area inventoried by the Forest Service.

Exhibit 38
Sand Creek Pass as seen from Boulder Ridge looking northwesterly. Bull Mountain is in the background. Corridor No. 1 would go through this pass, crossing from the lower right to the left of the photograph.

Exhibit 39
Cherokee Park as seen from the west looking easterly. Corridor No. 1 goes down the ridge at the right center and goes easterly through the center background of the photograph.

Exhibit 40
View looking westerly along Corridor No. 1. The photograph was taken near Halligan Reservoir.

Exhibit 41
Looking easterly along Corridor No. 1. The corridor is along the left center of the photograph going from bottom to top. U.S. Highway 287 is seen crossing the photograph from left to right. The terrain as shown is typical along U.S. Highway 287 from Virginia Dale to Laporte.

Exhibit 42
Looking westerly along Corridor No. 3S from the Sand Creek road. The corridor would be in the left center of the photograph from bottom to top, staying at the base of Bull Mountain which appears in the left background.

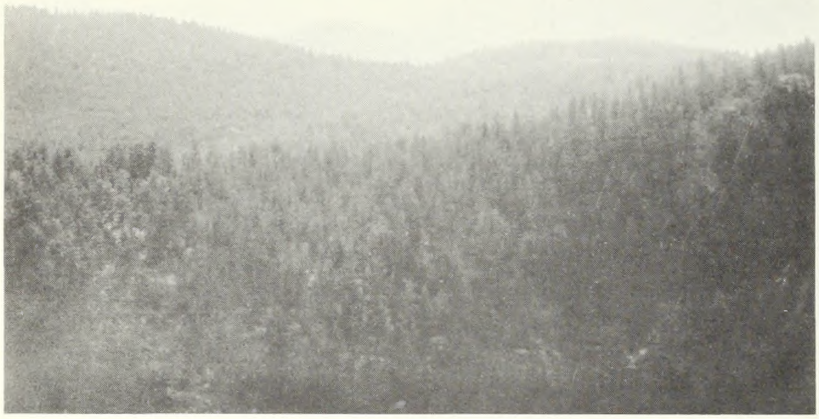


Exhibit 43
This view is from east of Crown Point looking easterly. This is typical terrain along Corridor No. 4.

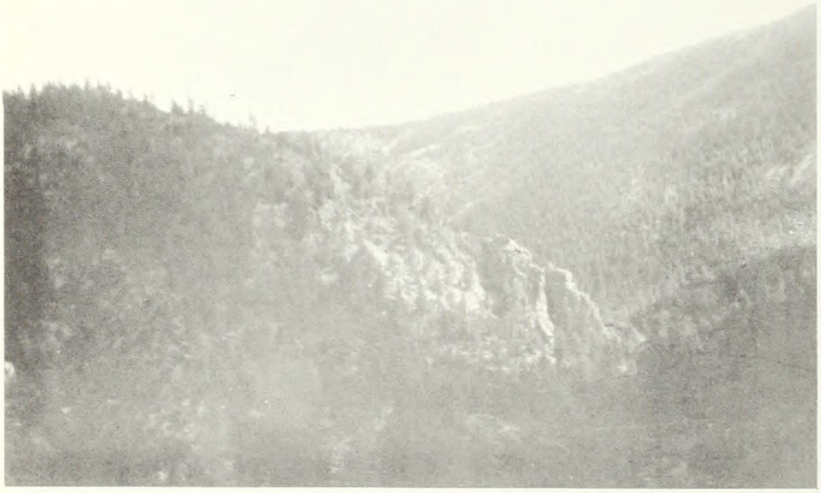


Exhibit 44
A view of Bennett Creek in the vicinity of Corridor No. 4. This view is typical in the eastern part of Roosevelt National Forest from the South Fork of the Cache La Poudre River to Rist Canyon. Access is very difficult.

34. Comparative Discussions

Within this area, there are five main corridors and two alternate branches to compare. The costs of mitigating environmental impacts would be greatest in Corridor No. 4 since up to 25 miles of helicopter construction would be necessary. Corridor No. 2 would require about 4 miles of helicopter construction. Corridors No. 1, 3, 3S, and 3SN would be the least expensive to construct, with Corridors No. 2 and 2E being intermediate.

Operation and maintenance would be most difficult in Corridors No. 4 and 2. Corridor No. 3 is the least difficult with Corridors No. 1, 3S, and 3SN being slightly more difficult. Corridor No. 4 would involve the highest operation and maintenance costs due to high altitude. Power line loss due to length would be comparable to all corridors. However, because of the high altitude on Corridor No. 4, there could be an appreciable corona loss.

Corridor No. 1 would possibly be the most reliable in this area due to its accessibility, protection from ice and winds, and its distance from the Hayden-Archer 230-kv Transmission Line. Corridors No. 2 and 4 have limited access resulting in decreased reliability. Corridors No. 3, 3S, and 3SN are comparable and would be less reliable because of the proximity of the Hayden-Archer line.

Right-of-way acquisition costs would be less for Corridor No. 4 since most of it crosses public lands. Corridor No. 1 crosses checkerboard type ownership, alternating public and private lands, and would have higher costs than Corridor No. 4, but less than Corridors No. 2, 3, and 3S. Corridor No. 2 crosses the Red Feather Lake area, which has high land values and extensive subdivision developments. Right-of-way costs would be similar for Corridors No. 3 and 3S since they cross about 8 percent state lands, about 25 percent of Federal and about 67 percent private lands.

Corridors No. 3, 3S, 3SN, and 1 are at lower altitudes than Corridors No. 2 and 4 and would have fewer difficulties attributable to high altitudes.

Corridors No. 2 and 4 are in rougher terrain with limited access. The rough terrain could result in construction and operation difficulties. Corridor No. 1 has good access on the west end to Sheep Creek and also from the north side of Sheep Creek. The east end of this corridor has good access. The terrain is less rough in Corridors No. 1, 3, 3S, and 3SN. The higher areas in Corridor No. 4 have the potential to become critical erosion areas since any time the thin surface soil is disturbed, severe erosion can occur.

Hay fields along the Laramie River may present foundation

problems in Corridors No. 1, 2, 3, and 3S.

There is no known active mining in any corridor.

Corridor No. 2 goes through the Greyrock-Livermore roadless area inventoried by the Forest Service. This could preclude development of a transmission line in a portion of this corridor.

Corridor No. 4 also goes through an undeveloped area inventoried by the Forest Service. Corridors No. 1, 2E, 3, 3S, and 3SN do not cross any undeveloped areas inventoried by the Forest Service.

Corridor No. 2 would have the highest impact on recreation areas since it passes near camp grounds at Bellaire Lake, high recreation use areas and extensive subdivisions in the Red Feather Lake area.

Corridor No. 1 goes near camp grounds in the Cherokee Park Game Management areas and around Halligan Reservoir. The corridor also passes through areas being considered for private recreation development by the Union Pacific Railroad near Eaton Reservoir. Corridors No. 3 and 3S pass through areas being considered for residential and recreational development on Chimney Rock Ranch properties. Corridors No. 3S and 3SN pass near or through areas where recreational home developments may occur.

During the preparation of this analysis the portion of Corridor No. 3 in Wyoming appeared to involve legal considerations which precluded its recommendation. These legal considerations had been brought forth by the Platte River Municipal Power Association with the following excerpt from a letter to the Regional Director of the Bureau of Reclamation Lower Missouri Region.

> "As there is no constitutional or statutory authority for municipalities to own or operate facilities outside the State of Colorado, Platte River should not be a joint tenant in a section of transmission line in Wyoming for the reason that, when title to such interest vests in the Municipalities comprising Platte River, those municipalities would not be empowered to own, operate, or maintain said line."

Corridors No. 1, 2, 2E, and 4 have no known registered historical or archeological sites, and therefore, would have lesser impacts on these values. Corridors No. 3 and 3S have comparable effects on archeological sites. The Department of Anthropology at the University of Wyoming has indicated there are numerous sites along the Colorado-Wyoming border south of Laramie, Wyoming. Items of geologic interest in or near Corridor No. 3S include Chimney Rock, Cap Rock, and Bull Rock.

Corridor No. 4 encompasses some alpine tundra in the Crown Point area. None of the other corridors cross particularly fragile ecosystems.

The western reaches of Corridor No. 4 would require the most clearing. Corridors No. 1, 2, and 2E would require less clearing than Corridor No. 4. The least amounts of vegetative removal would be on Corridors No. 3 and 3S, with Corridor No. 3 having the lesser amount.

The northern reaches of this area are within the range of the bald eagle. Corridors No. 1, 2, and 4 are known to serve as summer range for deer and Corridors No. 2 and 4 as summer range for elk. The eastern portions of all corridors are used for winter range for both elk and deer. Antelope range in Corridors No. 3 and 3S.

35. Corridor Recommendations

Corridors No. 3, 3S, and 3SN would best meet the objective of balancing economic, engineering, environmental and land use factors in the Front Range Area. These selections were evaluated as follows:

1. The corridors do not involve the long stretches of helicopter construction, limited access and higher soil and visual impacts of Corridors No. 4 and 2.

2. Reliability and operation and maintenance difficulties are within tolerable ranges.
3. These corridors avoid higher altitudes.
4. Although right-of-way acquisition costs would be greater in Corridors No. 3, 3S, and 3SN, they would have lesser environmental impacts on recreation, vegetation, and wildlife.
5. Smaller amounts of vegetative removal would be required in these corridors and result in lesser impact on soil, water and visual aesthetics.
6. Construction difficulties would be less in these corridors compared to difficulties in the rugged terrain and higher altitudes of Corridors No. 2 and 4.
7. These corridors agree with the recommendations made in Area D, Medicine Bow Range.

When considering engineering factors alone, Corridor No. 1 is the most desirable. Corridor No. 1 is desirable from a construction and operation standpoint, has acceptable maintenance, is shorter in length than Corridors No. 3 and 3S when considering both Areas E and F, and appears to be the most reliable. However, Corridors No. 3 and 3S are considered to be more desirable from an environmental standpoint and would also be acceptable corridors for construction and operation and maintenance. Corridor No. 3SN, an alternate for No. 3S, is considered to have the least visual

impact on U.S. Highway 287. The relative merits of these corridors are:

1. Corridor No. 3 has approximately 11.5 miles less rough terrain than Corridor No. 3S-3SN.
2. Corridor No. 3S would have about 4 times as much clearing as Corridor No. 3, although both corridors would have very minor clearing.
3. Corridor No. 3 has existing Hayden-Archer Transmission Line access roads, whereas Corridor No. 3S-3SN would require some access road construction.
4. Both corridors have comparable land use patterns which include lands being considered for residential and recreational developments on the Chimney Rock Ranch properties.
5. Corridor No. 3S-3SN is generally at higher elevations than Corridor No. 3.
6. Both corridors would cross approximately the same number of live streams.
7. Corridor No. 3S-3SN would have about 4 to 5 more miles in rocky-type terrain, possibly requiring rock-type footings.
8. Visual impacts from primary access roads would be similar with Corridor No. 3S having a greater visual impact crossing U.S. Highway 287. Alternate Corridor No. 3SN

would have the least visual impact at U.S. Highway 287.

9. Since the two corridors are generally about 3 miles apart, reliability would not be significantly different.
10. The terrain in Corridor No. 3S more readily lends itself to blending a transmission line into the landscape. This is one of the main advantages of Corridor No. 3S over Corridor No. 3.
11. Corridors No. 3S and 3SN would introduce an additional corridor into the area whereas Corridor No. 3 would not.
12. Corridor No. 3SN avoids the Virginia Dale area and would have less visual impact than Corridor No. 3S as seen from U.S. Highway 287.

The legal considerations presented on page 153 of this analysis are not considered to be overriding factors in the recommendations of a corridor in Area E. According to discussions held in early May 1973, there are no limiting legal constraints governing either the geographic jurisdiction of the participants in an undivided ownership or potential segmented ownership. Therefore, environmental and engineering factors, rather than legal considerations, are the basis for a corridor recommendation.

Although a longer route when considering both Areas E and F, Corridor No. 3 is recommended in these areas due to the environmental and engineering balance. This corridor would cause the

least impact on the environment and would have the least construction difficulties. This corridor is already occupied by the Hayden-Archer 230-Kv Transmission Line and less additional environmental impact would be caused by another line.

IX. AREA F, PLAINS

36. Area Description

This area includes Highway 287, Interstate 25, Virginia Dale, irrigation reservoirs, dryland and irrigated farms around Fort Collins and the area near Ault, Colorado.

37. Existing Area Environment

a. Physiography

This is the western edge of the Great Plains. Elevation varies from 5,000 feet to 5,500 feet in the plains. There are a few buttes rising from the plain to an elevation of 7,000 feet.

b. Relief

The landscape consists of rolling hills and valleys complexed with rough broken lands to the north and west, giving way to gently rolling hills which are broken by broad, well developed, shallow drainages and irrigated valleys to the south. Small streams enter the area from the north and west and flow south to enter the South Platte River. Further east, the relief is undulating to gently rolling hills disected by small streams with adjacent flat bottomlands and terraces. The relief of the irrigated lands to the south is nearly level to gently undulating, with slopes ranging from one to three percent.

c. Soils and Erosion

The soils in the foothills region are derived from a wide variety of geological materials of both igneous and sedimentary origin. They are dominantly shallow to moderately deep and moderately light to medium textured. In the irrigated lands, the soils are brown, deep to moderately deep, and range from sandy to moderately heavy in texture. The deep soils are developed principally from loess or mixed loess and outwash materials. Small areas of poorly drained and saline soils are interspersed throughout both the uplands and bottomlands.

Erosion in the foothills section varies from slight to severe. Sheet and gully erosion has occurred locally on the dry farm areas. In the irrigated land, both wind and water erosion are moderately active on the cultivated areas. Gully erosion in unprotected irrigation ditches is a major problem on the uplands. Erosion on the pasture or plains is generally slight.

d. Climate

The climate of the Plains is comparatively uniform with low relative humidity, abundant sunshine, a generous growing season (140 days), light rainfall, and a large daily temperature range. The mean annual temperature at Fort Collins is near 50°F. Below 5,000 feet, summer

temperatures of 95° to 100°F. are not uncommon. The usual winter extremes are from 0°F. to -10° or -15°F. although a winter minimum of -41°F. was recorded at Fort Collins. Much of the precipitation, around 15 inches annually, occurs in the growing season. Thunderstorms are quite prevalent in the Plains area during the summer months, and the resulting precipitation may be quite heavy. The portions of the area near the foothills are subject to periodic severe turbulent winds, especially in winter and spring.

e. Vegetation

In the foothills section, the native vegetation consists mainly of mountain mahogany and chokecherry with an understory of wheat grasses, needle grasses, and blue grama. Scattered stands of ponderosa pine are common on the north slopes. A unique stand of pinon pine occurs just north of Owl Canyon Station on U. S. Highway 287.

In the plains section, the vegetation varies considerably with the kinds of soils. Medium-textured soils are dominated by blue grama while fine-textured shale-derived soils have western wheat grass and green needle grass. The rocky soils have varying amounts of side oats grama, little blue stem, and needle and thread grass.

f. Wildlife

Wildlife in this area is primarily small mammals and birds, although antelope are quite common on the less inhabited open plains and mule deer frequent the foothills area. The most representative small mammals are the coyote, bobcat, raccoon, red and gray fox, skunk, short-tailed weasel, rabbit, muskrat, and small rodents. The Colorado Division of Wildlife has established the Wellington Wildlife Management Area for small game.

The many small irrigation reservoirs attract migrating ducks, geese, and a resident flock of Canadian geese has been established. There are several families of birds of prey represented including owls, eagles, hawks, and falcons. Principal game birds include ringnecked pheasant, doves, and prairie chickens. Numerous songbirds also inhabit this area. Fish include trout, whitefish, bass, crappie, catfish, and a variety of rough fish in the warmer waters. The Colorado Division of Wildlife operates the Bellevue Research Hatchery and the Bellevue-Watson Hatchery at Bellevue. The Pawnee National Grassland, administered by the Roosevelt National Forest, lies to the east of the area.

g. Land Uses

(1) Agriculture

Farming is the principal use of the land. Dryland farming is carried on where water is not available

for irrigation. Lands not suitable for cultivation are used for livestock grazing. Much of the area is irrigated from nearby streams. Irrigated crops include sugar beets, potatoes, corn, hay, feed grains, and vegetables. Livestock is fattened in the many feedlots of the area. Farmed acreage will probably decrease in the future due to the conversion of farmlands to residential and industrial sites.

(2) Industry

Industrial development in this area has been extensive and development is expected to continue at a rapid pace. The economy of Fort Collins is dependent on Colorado State University which has an enrollment of approximately 18,000 students. The Eastman Kodak Plant located at Windsor is the most recent major development. Other major industries in the immediate vicinity are a cement plant at La Porte and a meat packing plant at Greeley. Industrial developments to the south of the study area are too many and varied to list in this report.

(3) Transportation

Major highways serving the area are Interstate 25, U. S. Highways 85, 287, 34, and State Highway 14. Many county roads traverse the area. The Union

Pacific and the Colorado and Southern Railroad serve the area. Landing strips are located at Fort Collins, Loveland, and Greeley, Colorado.

(4) Recreation

Hunting of waterfowl and fishing at the many lakes and reservoirs of this region are the dominant recreation use. Duck and goose hunting in this area is considered to be excellent. Fishing is affected by the fluctuation of the lake water levels in periods of heavy water use.

(5) Special Interest Areas

The following is a list of Colorado landmarks prepared by the Colorado Historical Society:

VIRGINIA DALE STAGE STATION: Located 4.5 miles from the Colorado-Wyoming State Line, on U. S. Highway 287, is a junction with a dirt road which leads to the Stage Station. Established in 1862 by Overland Stage Agent, Joseph A. (Jack) Slade, the Stage Station may have been named after Slade's wife, Virginia. The bullet-riddled station served as a refuge from Indian attacks for travelers and local residents. Slade himself gained notoriety for the killing of Jules Beni, one-time Overland Stage agent at Julesberg. It is said that Slade cut off Jules' ears, then after

the killing, nailed one to a post in the corral and carried the other on his watch chain. Slade was widely suspected of being in league with stage robbers during his tenure at Virginia Dale, and the mountains to the northwest became known as Robber's Roost because of the thieves who hid there.

NATURAL FORT: Below the Colorado-Wyoming State Line on U. S. Highway 87 lies the Warren Ranch, at one time one of the most important ranch properties in the West, lying both in Wyoming and Colorado. On the ranch is a geological site known as the Natural Fort, an exceptionally large outcrop of gray sandstone characteristic of the region. Tales are told of Indian battles here; of frightened travelers "holed up" to avoid Indians and white outlaws; of bandits who hid their loot in the fort's recesses; and of the freighters seeking protection.

OVERLAND TRAIL: The Overland Stage Line began using the Overland route along the South Platte River in 1862. The route followed up the South Platte River to the mouth of the Cache La Poudre River, then followed up the north side of the Cache La Poudre River to Laporte, where it joined the Cherokee Trail. The route continued north through Virginia Dale and

into Wyoming. Later, the Denver cutoff was established and all stages went to Denver, then north through Laporte. The Overland Trail was abandoned when the Union Pacific Railroad was completed in the late 1860's.

LINDENMEIER INDIAN SITE: This site is located 28 miles north of Fort Collins near the Wyoming border. The site is in Section 27, Township 12 North, Range 69 West of the Sixth Principal Meridian. It is one of the most northerly and extensive Folsom Indian digs. Countless fluted Folsom points have been found here along with blades, beads, scrapers, and the bones of extinct bison and mammals indicated Folsom man lived here shortly after the Glacial Age. The site was discovered in 1926 and named for the owner of the land at that time.

According to the Colorado Department of Natural Resources, there is a grove of pinon pine north of Owl Canyon on U. S. Highway No. 287. This stand of pinon pine covers more than 1,000 acres and is further north than any other stand known.

38. Corridor Descriptions and Key Considerations

Corridor No. 1

Mile 117.0 - 148.5

Corridor No. 1 enters the area about 4 miles north of Livermore at U. S. Highway 287. From the highway the corridor crosses

Stonewall Creek, goes along the north edge of Table Rock and skirts to the north of Park Creek Reservoir until it reaches Box Elder Creek. At Box Elder Creek it turns southeast, parallels the creek for about 3 miles, and skirts the northeast edge of a proposed reservoir site and Wellington oil field on the Boulder Drainage. The corridor continues in a southeasterly direction, crosses the Burlington Railroad, Interstate Highway 25 and traverses the area northeast of Indian Creek Reservoir. At this point, Corridor No. 1 turns south going through the Wellington Small Game Management Unit and then continues south going through the Black Hollow oil field and to the proposed Ault Substation site.

This corridor passes through rolling hills with sandy soil and scattered rock outcrops. Access is good throughout this section.

Key Considerations in Corridor No. 1, Area F

1. Visual impact from U. S. Highway 287 and Interstate Highway 25
2. Highway and railroad crossings
3. Wellington and Black Hollow oil fields
4. Wellington Small Game Management area
5. Park Creek Reservoir and a proposed reservoir site in the Box Elder Creek Drainage

Corridor No. 2

Mile 139.5 - 161.5

Corridor No. 2 enters this area at U. S. Highway 287 about 2 miles south of the Owl Canyon-pinon pine grove area. From U. S. Highway 287, the corridor goes in a southeasterly direction across the Colorado and Southern Railroad to the Poudre Valley Canal. After crossing the Canal, it intersects the Union Pacific Railroad and travels among numerous irrigation reservoirs. A radio antenna complex is in this area around Mile 144. It then crosses the Burlington Railroad and Interstate Highway 25. The corridor travels north of Cobb Lake, passes to the north of Black Hollow Reservoir, and continues to the Ault Substation.

This corridor section goes through rolling hills and irrigated farmland. The soil is silty sand and access is good throughout.

Key Considerations in Corridor No. 2, Area F

1. Visual impact from U. S. Highway 287, State Highway 1, and Interstate Highway 25
2. Irrigated farmlands and subdivision developments from Poudre Valley Canal to Interstate Highway 25
3. Radio antenna complex near Mile 144
4. Impact on land values
5. Railroad crossings

Corridor No. 2E

Mile 139.8 - 149.5

This section of corridor goes easterly from U. S. Highway 287, crosses the Colorado and Southern Railroad just north of Owl Canyon, goes over Horse Thief Pass, crosses the Union Pacific Railroad, goes through the Wellington oil field, crosses Box Elder Creek and joins Corridor No. 3 at Mile 144.1. From this point, the routing of Corridor No. 3 is followed to Ault Substation. The corridor passes by several reservoirs and goes through farmlands. The soil is silty sand and access is good.

Key Considerations in Corridor No. 2E, Area F

1. Proximity of pinon grove
2. Wellington oil field
3. The corridor is north of subdivision and the radio antenna complex.
4. The corridor is north of most irrigation reservoirs.

Corridor No. 3

Mile 113.2 - 134.9

This section of corridor enters the area at U. S. Highway 287 about 2.5 miles north of the Wyoming-Colorado border and goes east 2.3 miles crossing the Overland Trail and the West Fork of Dale Creek. The corridor then departs from the existing Hayden-Archer 230-kv Transmission Line and goes southeast across Dale Creek and the Wyoming-Colorado border. From the

border, the corridor goes just east of Table and Red Mountains, and Steamboat Rock, and crosses Box Elder Creek where it joins Corridor No. 1 at Mile 123.8. The country is mostly rolling low hills used as grazing land. There are rock outcrops in the Table Mountain and Steamboat Rock areas, but most of the section is in sandy soil. Miles 134.9 to 159.6 are the same as Corridor No. 1 to the Ault Substation site.

Key Considerations in Corridor No. 3 Area F

1. Visual impact from U. S. Highway 287 and Interstate Highway 25
2. Highway and railroad crossings
3. Wellington and Black Hollow oil fields
4. Wellington Small Game Management Area
5. Proposed reservoir site in the Box Elder Creek Drainage
6. The Overland Trail
7. Possible unidentified archeological sites

Corridor No. 3S

Mile 117.6 - 126.8

This section of corridor enters the area at U. S. Highway 287 about 1 mile south of Virginia Dale, Colorado. From the highway, the corridor goes in a southeasterly direction and crosses the Overland Trail, Deadman Creek, the Red Mountain-Granite Canyon road, goes north and east of Red Mountain and Steamboat Rock and joins Corridor No. 3 at Mile 131.4. The

country is mostly low rolling hills. Some rock outcrops are in the Red Mountain and Steamboat Rock area, but most of the section is sandy soil. The land is used for grazing. Access is good.

Key Considerations in Corridor No. 3S, Area F

1. High visual impact from U. S. Highway 287 and Red Mountain to Granite Pass road
2. The Overland Trail
3. Possible unidentified archeological sites
4. Ranches

Corridor No. 3SN

Mile 114.4 - 118.4

Corridor No. 3SN goes from U. S. Highway 287 in a northeast direction crossing Mud Creek and the Overland Trail. From here the corridor turns and goes east crossing Dale Creek, a County road and ending at Mile 120.6 of Corridor No. 3 north of Table Mountain.

Key Considerations for Corridor No. 3SN, Area F

1. U. S. Highway 287
2. Mud and Dale Creeks
3. Old Overland Trail
4. Overland Trail Stage Station
5. Ranches

Corridor No. 4

Mile 110.7 - 129.4

This section of corridor enters the area at U. S. Highway 287 and goes in an easterly direction passing 1½ miles north of Laporte and crossing the Union Pacific Railroad approximately 4½ miles north of Fort Collins, Colorado. The corridor then goes among numerous irrigation reservoirs, crosses State Highway 1, the Burlington Railroad, Interstate Highway 25, and skirts the south edge of Cobb Lake. The corridor then continues in an easterly direction skirting the north edge of Black Hollow Reservoir and ends at the Ault Substation site. The soil is a silty sand through the section. The terrain is relatively flat and access is good.

Key Considerations in Corridor No. 4, Area F

1. There would be a high visual impact from rural residences scattered throughout the section; subdivision developments, small towns, and manufacturing plants between U. S. Highway 287 and Interstate Highway 25
2. Visual impact from U. S. Highway 287, State Highway 1, and Interstate Highway 25
3. Irrigated lands between U. S. Highway 287 and Cobb Lake, and dryland wheatfields from Cobb Lake to Ault Substation site
4. Impact on land values

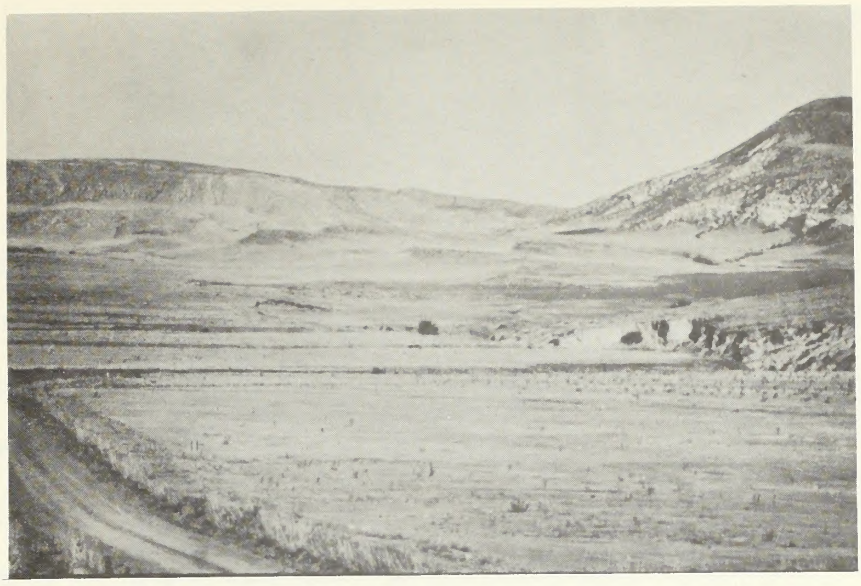


Exhibit 45
A view of terrain just northwest of Park Creek Reservoir as seen looking northeasterly. Corridors No. 1 and 3 would go through this valley.

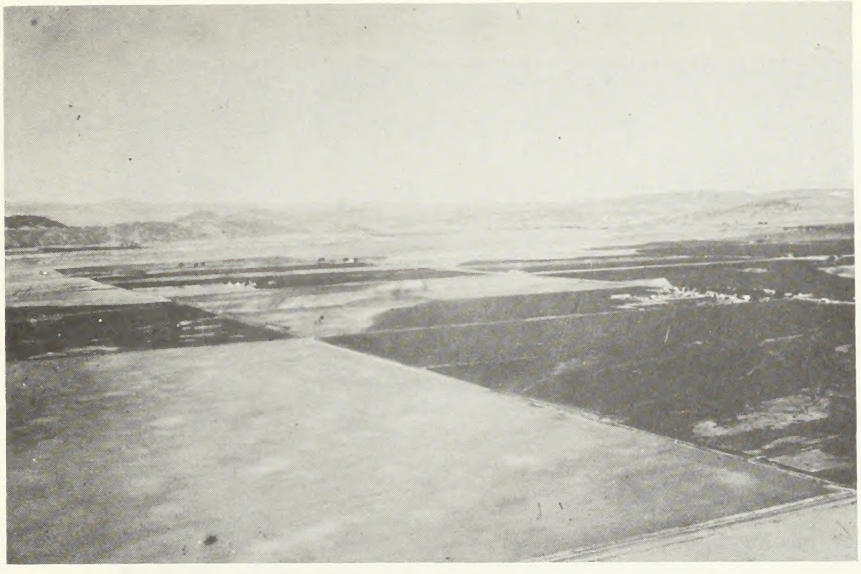


Exhibit 46
A view of the Buckeye farm district looking northeasterly. Corridors No. 1 and 3 are located at the base of the hills in the background.

Exhibit 47

Wellington, Colorado, as seen from the air looking northeasterly. Interstate Highway I-25 can be seen in the center of the photograph. Corridors No. 1 and 3 are against the ridge in the background.

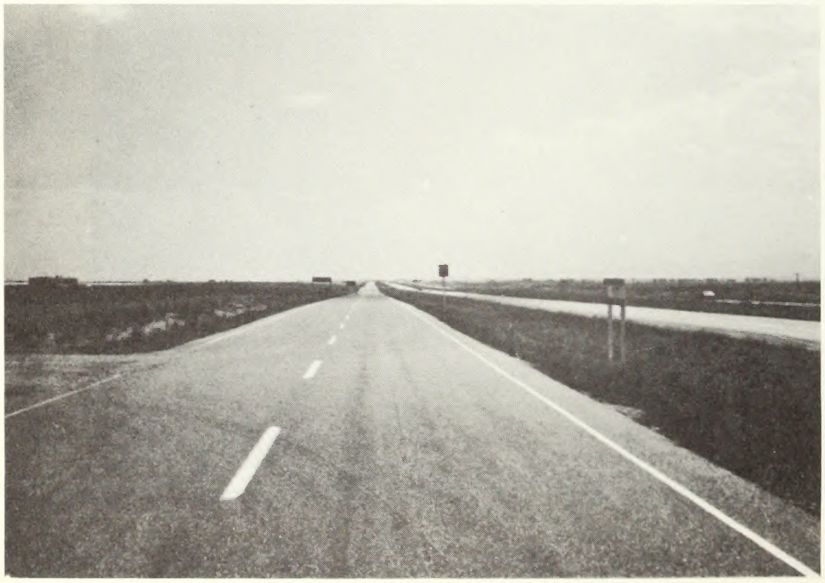


Exhibit 48

A southerly view of Interstate Highway I-25 as seen at Corridors No. 1 and 3. This is typical of the terrain along this highway.

39. Comparative Discussions

There are four corridors and three alternate branches to compare in this area. Construction difficulty would be greatest through the irrigated fields in Corridors No. 2 and 4. Corridor No. 2E would skirt north of most of the irrigated farms and subdivisions. In general, less construction difficulties would be encountered in the northern corridors. Operation and maintenance in all corridors would be comparable.

Powerline loss would be less in the shorter southern corridors. Altitude would not contribute significantly to corona losses in this area.

Reliability would be affected somewhat in Corridors No. 2, 2E and 4, since they are closer to heavily populated areas, known aircraft landing fields and flight patterns. Corridor No. 3 would also be less reliable as it parallels the Hayden-Archer 230-Kv Transmission Line for a short distance.

A line in Corridor No. 4 would be the most economical to construct since it is the shortest route in this area. Lines in Corridors No. 2 and 2E would be the next most economical followed by Corridors No. 1, 3S and 3SN. A line in Corridor No. 3 would be the least economical to construct since it is the longest route in this area.

Right-of-way acquisition costs would be generally less in the northern corridors away from irrigated lands and subdivision developments.

The terrain in Corridors No. 1, 3, 3S and 3SN is more favorable for blending a transmission line into the landscape.

Corridors No. 1, 2, 2E, 4 and the southern portion of Corridor No. 3 would have slightly more favorable construction conditions than Corridors No. 3S, 3SN, and the northern portion of Corridor No. 3 due to lower altitudes and flatter terrain.

The northern corridors would possibly be subject to more ice loading conditions than the southern corridors.

All corridors in this area have good access.

In general, the northern corridors would have less visual impacts than the southern corridors. Corridors No. 2 and 4 would have the greatest impacts as they pass through irrigated farm lands and subdivision developments north of Fort Collins, Colorado. A radio antenna complex is in Corridor No. 2 which would make it difficult to locate a line. Corridor No. 2E avoids the antenna complex and most of the irrigated farm lands, reservoirs, and subdivisions. High visual impacts will occur where the corridors cross State Highway 1, U. S. Highway 287 and Interstate 25. Corridor No. 3SN would have

the least visual impact crossing U. S. Highway 287, Corridors No. 4 and 2 would have the greatest visual impact crossing Interstate 25.

Corridors No. 2, 2E and 4 may have poor structural foundation conditions through the irrigated farm lands. All other corridors should have good foundation material. Wind erosion will be prevalent where the vegetation is removed in all corridors.

Access is good in all corridors with the exception of the western portion of Corridor No. 3SN which has limited access.

Corridors No. 1 and 2E go through the Wellington oil fields and the southern portion of Corridors No. 1 and 3 go through the Black Hollow oil fields. Limestone quarries are located near Corridor No. 2E at Owl Canyon. There are no other known mineral deposits in the other corridors.

There are no significant developed recreation areas in any of the corridors.

Corridors No. 1 and 3 go through the Wellington Small Game Management Unit.

Corridor No. 3SN passes north of the Virginia Dale Stage Station and Corridor No. 3S passes near the Virginia Dale

Church and Cemetary and therefore would have the greatest impacts on historical values. All of the corridors cross the Overland Trail.

There are no known fragile ecosystems in the area except the pinon pine grove north of Corridor No. 2E. This area is presently being stripped and quarried. Minor vegetative clearing may be required on Corridors No. 3S and 3SN. Other corridors would not involve clearing.

The northeastern Colorado plains area serves as a wintering area for the American Bald Eagle. All corridors in this area can be considered to be within this range. Antelope use the open, more remote areas in Corridors No. 1 and 3 as year-round habitat. The mule deer is abundant in the northern portion of the Area.

40. Corridor Recommendations

Corridor No. 3 is recommended for the following reasons:

a. Good foundation soil structure throughout the entire corridor

b. Very little road construction would be necessary.

c. Parts of this corridor lends itself to blending with topography.

d. Corridor No. 3 would have less visual impact from Interstate 25.

e. Avoids the subdivision development north of Fort Collins, Colorado crossed by Corridors No. 2 and 4

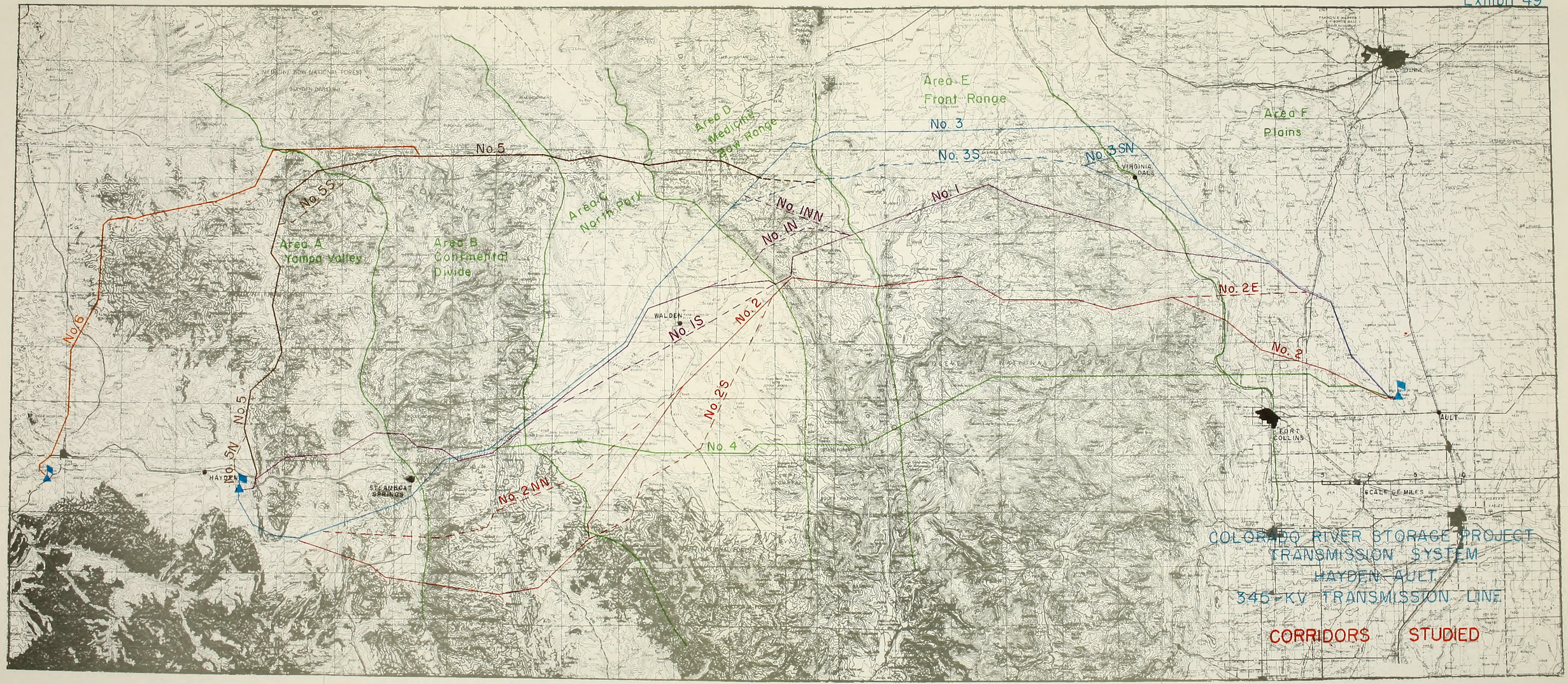
f. The corridor is located north of the irrigated fields.

g. The corridor would skirt the critical part of the Wellington Small Game Management area.

h. This corridor avoids the historic and pastoral setting in the Virginia Dale area.

i. This corridor has an acceptable crossing for U.S. Highway 287 due to topography.

Exhibit 49


Area A
Yampa Valley
Area B
Continental
Divide
Area C
North Park
Area D
Medicine
Bow Range
Area E
Front Range
Area F
Plains
No. 5
No. 5S
No. 6
No. 5N
No. 3
No. 3S
No. 3SN
No. 1N
No. 1NN
No. 1
No. 1S
No. 2
No. 2E
No. 2S
No. 2NN
No. 4
WALDEN
HAYDEN
STEAMBOAT SPRINGS
VIRGINIA DALE
FORT COLLINS
AULT
SCALE OF MILES
COLORADO RIVER STORAGE PROJECT
TRANSMISSION SYSTEM
HAYDEN-AULT
345-KV TRANSMISSION LINE
CORRIDORS STUDIED

NOTE: Exhibits No. 58 and 59 on pages 200 and 201 of this report may be unfolded and used for reference during review of Chapters X through XII. Exhibit No. 58 shows the recommended corridor and corridor widths. Exhibit No. 59 shows land management areas.

X. SUMMARY OF RECOMMENDATIONS

The following is a summary of recommendations made in the various areas, including the principal factors considered in each case.

41. Areas A and B, Yampa Valley and Continental Divide

In Areas A and B, Corridor No. 3 was recommended as the best corridor considering all engineering and environmental factors. The Hayden-Archer line already intrudes in these areas and the impacts associated with the addition of another line would be less than installing a line in an area which does not encompass such a feature. Existing access roads can be utilized reducing the number of new roads to be constructed. Although system reliability would be decreased through paralleling an existing line, the ready availability of access may help to offset this disadvantage. Operation and maintenance would be easier since these could be combined for the two lines.

Construction would be acceptable and no helicopter construction is anticipated. No significant additional long-term impacts on wildlife appear eminent. Additional clearing would be minimal, and roadless areas are avoided in this corridor.

Impacts would be further reduced by using a cooperative plan, whereby double-circuit towers would be constructed from the

Hayden Substation to Quarry Mountain to carry the Hayden-Ault 345-kv and Hayden-Steamboat or Hayden-Archer 230-kv lines. Under this plan, about 19.5 miles of the proposed single circuit lines in the area could be eliminated.

Advantages of this plan include:

1. The number of new lines in the reach would be reduced.
2. Right-of-way requirements would be minimized.
3. The Hayden-Archer line could be upgraded to 345-kv without further rebuilding of structures in this reach.

Disadvantages include:

1. Reliability would be reduced. Placing all of the transmission to eastern Colorado on one set of structures would be most critical.
2. Structures would be taller and could be more of an aircraft hazard, especially near the glide path to the Hayden Airfield.

In the Steamboat Springs area of Corridor No. 3, from Quarry Mountain to the Routt National Forest boundary, subdivision and current land use plans would make acquiring new right-of-way difficult. In this reach, double-circuit tubular steel structures on the right-of-way for the Hayden-Archer line and spaced to give the best balance between additional right-of-way and visual impacts would be used.

Corridor No. 1, the original recommendation in Area A and the west section of Area B, met with strong public opposition due to the interference with existing and planned residential and recreational developments. Corridor No. 1 also possibly infringes upon a roadless area. Some helicopter construction would be required in Area B, and the crossing over Highway 40 would require careful environmental design. Access roads would be required.

The main advantages of Corridor No. 1 include terrain which lends itself to blending of a transmission line, limited clearing would be required, and it is the shortest route.

Corridors No. 2 and 2NN would cross through or near existing or planned residential areas where location and design would be difficult. The first part of the routes up Walton Creek (Corridor No. 2NN) and Green Creek (Corridor No. 2) would be up long steep exposed slopes where roads would be prohibited. These steep slopes would be visible to a large portion of the adjacent residential areas and long reaches of the corridors would be visible from U.S. Highway 40. From the steep western wall of the Park and Gore Ranges, Corridors No. 2 and 2NN would pass through roadless areas where vehicles are now prohibited. Restrictions on line location, clearing, road construction, etc., would be

required. Five to ten miles of helicopter construction and maintenance would probably be required.

Corridors No. 5, 5S, and 5N would all have visual impacts, especially Corridors No. 5 and 5 N at Highway 40. Corridors No. 5S and 5 cross roadless areas, and all three would have difficult winter access. The longer length, at higher elevations, of these corridors would result in greater costs. Corridor No. 5 would cross potential subdivisions and Corridor No. 5N would cross irrigated hay fields. There would be difficult construction due to unstable soil conditions and lack of general access in all three corridors. Corridor No. 5S and portions of Corridor No. 5 would also involve heavy clearing.

Corridor No. 6 would have significant visual impact near Craig, Colorado. Construction, operation, and maintenance would be difficult due to the heavy clearing in Area B, overall length, unstable soils and the poor access. This corridor would also cross potential subdivision development.

42. Area C, North Park

All of the corridors across North Park in Area C are acceptable. Corridor No. 3 is recommended in this area since it avoids the Arapaho Wildlife Refuge, North and East Sand Hills, and Walden. The terrain provides for better blending of the

transmission line into the surroundings, and existing access roads for the Hayden-Ault line can be used for the construction and operation of the Hayden-Ault line. No significant environmental or engineering problems are anticipated.

43. Areas D, E, and F, Medicine Bow Range, Front Range, and Plains

In Areas D, E, and F, Corridor No. 3 was recommended as the best balance of engineering and environmental factors. Corridor No. 3 has less additional impacts since it parallels the Hayden-Archer line in Areas D and E. Corridor No. 3, although longer, has good access and would not require helicopter construction. It is at generally lower altitudes and would involve minimal clearing. The terrain and soils do not present environmental or engineering constraints during location and construction. There would be lesser visual impacts associated with this corridor than with Corridors No. 1, 2, 3S, and 4. The location of the Laramie River crossing is quite good. It also avoids many of the recreational areas in Area E and the populated areas, irrigation, and subdivision in Area F.

Corridor No. 3S is also at fairly favorable altitudes, although the terrain in the corridor is rougher than that in Corridor No. 3. Access is not as available as that in Corridor No. 3 and there is a greater amount of rock encountered. The terrain generally lends itself well to blending a transmission line. The corridor is

shorter than Corridor No. 3. There would be more clearing in Area E.

Corridor No. 3S would have significant visual impact on U.S. Highway 287, however Sub-Corridor No. 3SN represents the best crossing of Highway 287 of any of the corridors.

Corridor No. 4 is the shortest practical route from North Park to the Ault Substation; however, when all of the aspects of environmental impact, construction, and operation were considered, this was considered to be the least desirable of the corridors studied.

Principal objections to Corridor No. 4 include:

1. More than 45 miles of difficult construction from the State forest boundary near the North Fork Michigan River to the Roosevelt National Forest boundary west of Laporte.
2. About 16 miles at or about 10,000-foot elevation. This would cause problems with construction and operation.
3. Numerous recreation areas exist near the corridor in North Fork Michigan River and Cache La Poudre River areas.

4. Suburban development is occurring along the corridor from the edge of the Roosevelt National Forest to Kenyon Corner on Colorado Highway 1. Irrigated lands extend to near Interstate Highway 25 and Cobb Lake.
5. More damage to environmental values would be caused by a line here than along any of the other corridors.

Corridor No. 2 is the next shortest route. From an engineering standpoint, this corridor would be acceptable but not the best. Difficult construction and access for maintenance would exist from Shipman Park to the Laramie River, east of the Laramie River along Deadman Creek, and on the east slope of North Bald Mountain approaching Bellaire Lake. The portion of the corridor in Deadman Park and along the north side of North Bald Mountain is about 10,000 feet in elevation. The greatest objection to this corridor, however, is due to the environmental impact.

The corridor would pass through the south end of Shipman Park, a roadless area being studied for possible inclusion into the wilderness system, and at one point is only about one mile north of the Rawah Wilderness. Several Forest Service campgrounds exist near the corridor in the Stub Creek, North Bald Mountain, and Bellaire Lake areas. A major development of

summer and year-round homes exists at Red Feather Lakes and portions of the line would be visible from this area. Numerous lakes and irrigated fields occur between U.S. 287 and Interstate Highway 25.

From an engineering standpoint alone, Corridor No. 1 through Ute Pass, Sand Creek Pass, past Eaton Reservoir and through Cherokee Park is the best. However, this area encompasses the Shipman Park roadless area which has been selected for further study for possible inclusion into the wilderness system. This would preclude any development until the study is completed and recommendations are made for its use. There would; however, be more impact on the environment than would occur along Corridors No. 3, 3S, and 3SN. The greatest impact would occur in the Ute Pass, Shipman Park, Eaton Reservoir, and Cherokee Park areas. The Cherokee Park Game Management Area would also be crossed. Use of Alternate 1N north of Shipman Mountain near the Pache Trail would avoid the critical Ute Pass-Shipman Park area; however, about 2 miles of helicopter construction would be required on the west slope of the Medicine Bow Range.

XI. RECOMMENDED CORRIDOR LOCATION

44. Area A, Yampa Valley

The corridor goes southeast from the Hayden Substation to Twenty Mile Park, then goes northeast over Quarry Mountain, across the Yampa River, the Denver and Rio Grande Western Railroad, and U.S. Highway 40 through developments near Steamboat Springs to the west slope of the Continental Divide. The corridor parallels and includes the existing Hayden-Archer 230-kv Transmission Line through Area A.

45. Area B, Continental Divide

The corridor goes northeast from the west slope of the Continental Divide through Buffalo Pass to the west edge of North Park. The corridor parallels the existing Hayden-Archer 230-kv Transmission Line through Area B.

46. Area C, North Park

The corridor goes northeast from the west edge of North Park across Chedsey Creek, the North Platte River, the Michigan River, the Union Pacific Railroad, State Highway 125 and the Canadian River to the east edge of North Park. The corridor parallels the existing Hayden-Archer 230-kv Transmission Line through Area C.

47. Area D, Medicine Bow Range

The corridor goes northeast from the east edge of North Park paralleling the existing Hayden-Archer 230-kv Transmission Line over the Medicine Bow Range and across the Wyoming-Colorado border to the Laramie River.

48. Area E, Front Range

The corridor goes easterly from the Laramie River paralleling the Hayden-Archer 230-kv Transmission Line across Sand Creek and Boulder Ridge to U.S. Highway 287.

49. Area F, Plains

The corridor goes east from U.S. Highway 287 across the Overland Trail and the west fork of Dale Creek. The corridor then departs from the Hayden-Archer 230-kv Transmission Line and goes southeast across the Wyoming-Colorado border, Box Elder Creek, the Burlington Railroad, Interstate Highway 25, and the Black Hollow oilfield to the proposed Ault Substation.

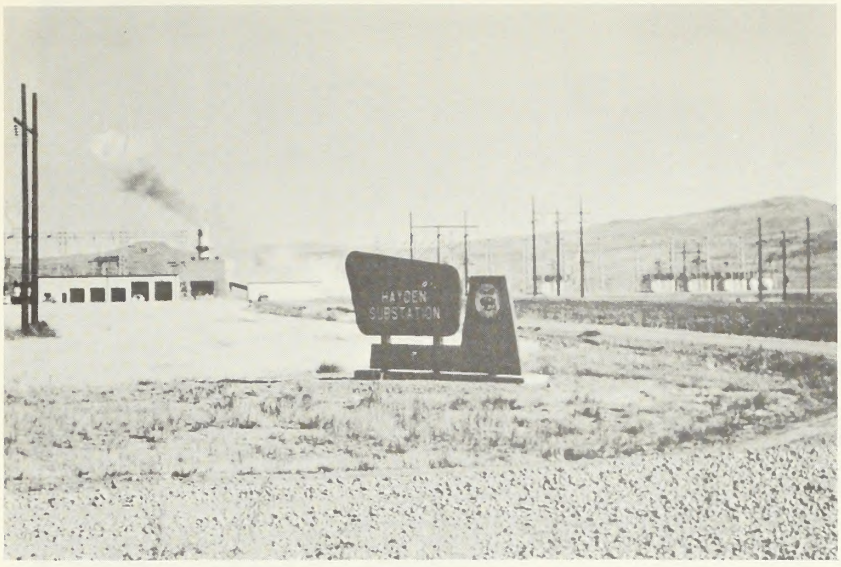


Exhibit 50
View of Hayden Substation as seen from the County road south of the substation. The Hayden Powerplant is seen in the background. This substation is the western terminal of the proposed transmission line.

Exhibit 51
View looking westerly from the west end of Twenty Mile Park in Corridor No. 3. The Hayden-Archer 230-kv and the Hayden-Green Mountain 138-kv lines are shown.

Exhibit 52
View looking southwesterly from the Yampa River towards Quarry Mountain in Corridor No. 3. The Hayden-Archer 230-kv Transmission Line is shown.

Exhibit 53
View looking southwesterly from inside the forest boundary on the west slope of the Continental Divide in Corridor No. 3. The Hayden-Archer 230-kv Transmission Line is shown. Steamboat Springs, Colorado is shown in the upper right of photo. Quarry Mountain is in the background.

Exhibit 54
The existing Hayden-Archer 230-kv Transmission Line as seen on the west slope of the Medicine Bow Range looking northeasterly. Corridor No. 3 is on the left side of the existing line.

Exhibit 55
Red Top Mountain as seen from U.S. Highway 287 looking easterly. Corridor No. 3 is behind the mountain. This is a general view of the terrain from Virginia Dale southward to the vicinity of the Buckeye farming district.

Exhibit 56
Looking northwesterly along Corridor No. 3 just east of Interstate Highway I-25. The highway is adjacent to the communication lines seen in the background.

Exhibit 57
A general view along Corridor No. 3 northwesterly of the Ault Substation site in Weld County. This terrain is typical of corridor from Interstate Highway I-25 to the Ault Substation.

XII. ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE RECOMMENDED CORRIDOR

50. Soil

Soil erosion could occur wherever the soil is disturbed by road construction, clearing, structure construction, or vehicle travel through the area. Soil loss may be especially critical in areas of thin topsoil. Areas which may be particularly vulnerable on the recommended corridor include the Quarry Mountain slide area, Buffalo Pass, near the North Sand Hills and the section between Hayden and Steamboat Springs.

51. Water Quality

Water quality could be degradated should heavy soil erosion occur. There could be a temporary increase in turbidity from construction activity and vehicle stream crossings. Such impacts could be expected in the Yampa, Michigan, Canadian, and Laramie Rivers areas; as in the smaller drainages. Any spillage of oil, gasoline, or other pollutants could adversely affect water quality. As a result of any clearing associated with the transmission line, more snowpack may accumulate in the open areas and would result in increased runoff. After construction is complete and satisfactory revegetation is established, the danger to the water resource is expected to be nonexistent or very minimal.

52. Air Quality

Dust and equipment emissions associated with construction activity

during the construction phase would have a short-term effect on air quality. Patrol maintenance operations may cause sporadic short-term dust pollution.

53. Wildlife

There would be disturbance of game movement patterns during construction, notably in the Buffalo Pass area, Medicine Bow Range crossing, and in the Front Ranges and Plains areas.

There may be disturbance of avian flight patterns during initial operation. There would be increased perching and hunting sites for birds of prey. This increased use would be greatest near highways where road kills provide an easy food source. North Park and the Plains area near Fort Collins, with their large number of birds, are susceptible to these impacts.

It is not anticipated that the transmission line will have an adverse impact on the large birds of prey since the clearance between conductor and possible grounds is much greater than the birds wing span.

Conductor noise may result in disturbance of the wildlife during initial operation, however, it appears that this disturbance is of a transitory nature as wildlife quickly become accustomed to the lines and noise.

Clearing and vegetative thinning results in more edge type habitat for animals. Edge habitat provides better grazing and protection for a larger wildlife population. Increased access may be either beneficial or detrimental to wildlife. Access results in availability for population control through hunting. Conversely, increased access may result in resource damage by indiscriminate use.

54. Vegetation

There would be a slight reduction in saw timber harvest in the Buffalo Pass area and the Medicine Bow Range. Tree topping and pruning could inhibit the vigor of trees and render them susceptible to insect and disease attack.

Ground vegetation will be disturbed by road and tower construction. North Park with its dry climate and high elevation, the Buffalo Pass area, and the Medicine Bow Range will have longer lasting impacts of this type since they will be slower to recover.

55. Recreation

With the exception of the impact on open space, transmission lines and corridors do not have an adverse impact on general outdoor recreation uses. Transmission lines distract from the scenic values of developed camp grounds and other intensive use recreation sites.

Hunters, snowmobilers, sight-seers, hikers, motor cyclists, and other outdoor recreationists could use the access roads, although access road use would be controlled by the administering land use agency or affected landowner.

56. Aesthetics

Transmission lines are unnatural objects on the landscape and will detract from the rural scenic values of an area. These visual impacts result from the transmission structures, conductors, clearing for structure and conductor safety, as well as the operation and construction roads. Although the entire corridor length will be visually impacted, the Steamboat Springs-Buffalo Pass area, the Laramie River Valley, and the major highway crossings are especially sensitive areas.

The presence of a transmission line could depress property values in high recreation-use and sub-development areas such as Steamboat Springs, the Chimney Rock area and the Virginia Dale area.

57. Fire

The addition of a conductor and increased access to remote areas would result in increased fire risk. The environmental design of the corridor precludes its usefulness for a fire break.

58. Grazing

Using the landscape method of clearing, the proposed project will have little measurable effect in the range resource and

could possibly increase the available forage.

59. Social

Radio interference does not normally occur when the line is not in close proximity to radio antennas. When in close proximity, proper design of hardware and conductor size can eliminate interference. Detectable noise could occur under some weather conditions

Development patterns and growth are not caused by the presence of transmission lines in an area, however, the lines can enhance the economic setting and serve as power sources for new development. If the roads for the project remain in service, they could be designed to meet transportation system requirements, and could be added to the system; resulting in better transportation for the public.

Transmission lines, in general, represent an intrusion on an individual's personal aesthetic values.

Accidents can occur in any activity. In the event of a line failure, if a conductor should fail, an instantaneous electrocution and fire hazard would exist.

An inductive hazard could occur at fence crossings and utility line crossings if adequate grounding is not used. The structures used for the conductors could present hazards to low-flying aircraft.

Exhibit 58

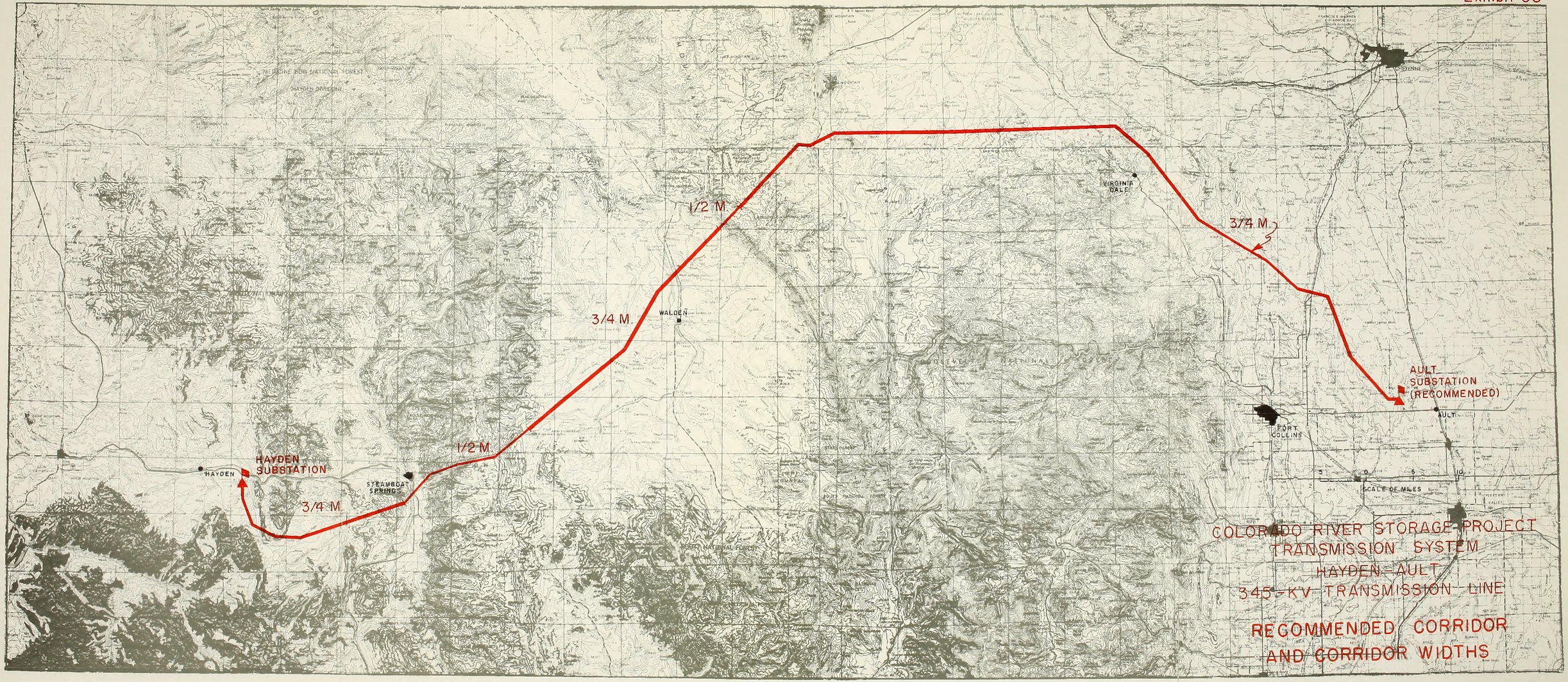
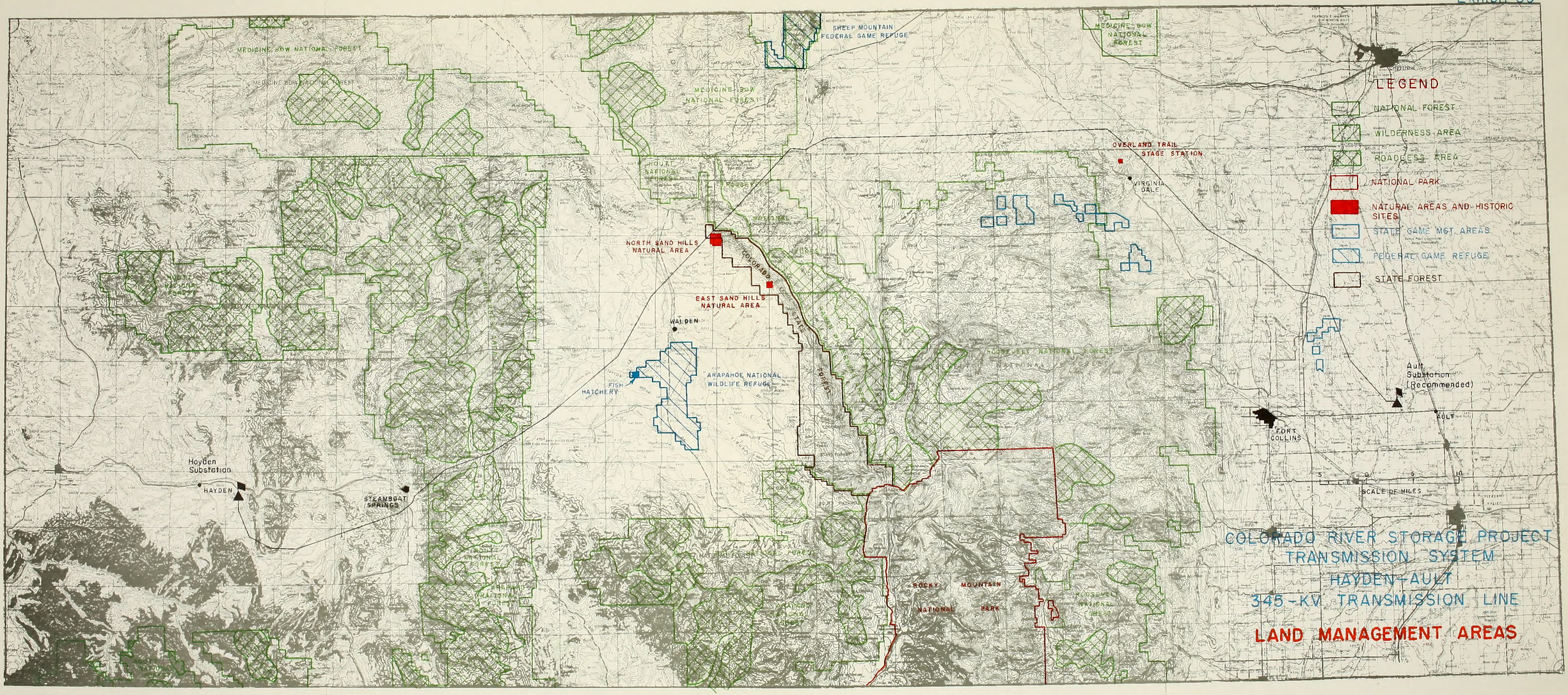

MEDICINE BOW NATIONAL FOREST
HAYDEN DIVISION
ROUTT NATIONAL FOREST
ARAPAHO NATIONAL FOREST
ROOSEVELT NATIONAL FOREST
CHEYENNE
VIRGINIA DALE
WALDEN
STEAMBOAT SPRINGS
HAYDEN
FORT COLLINS
AULT
1/2 M.
3/4 M.
1/2 M.
3/4 M.
3/4 M.
HAYDEN SUBSTATION
AULT SUBSTATION (RECOMMENDED)
SCALE OF MILES
0
5
10
COLORADO RIVER STORAGE PROJECT
TRANSMISSION SYSTEM
HAYDEN-AULT
345-KV TRANSMISSION LINE
RECOMMENDED CORRIDOR
AND CORRIDOR WIDTHS

Exhibit 59


LEGEND
NATIONAL FOREST
WILDERNESS AREA
ROADLESS AREA
NATIONAL PARK
NATURAL AREAS AND HISTORIC SITES
STATE GAME MGT. AREAS
FEDERAL GAME REFUGE
STATE FOREST
MEDICINE BOW NATIONAL FOREST
SHEEP MOUNTAIN FEDERAL GAME REFUGE
OVERLAND TRAIL STAGE STATION
VIRGINIA DALE
NORTH SAND HILLS NATURAL AREA
EAST SAND HILLS NATURAL AREA
WALDEN
FISH HATCHERY
ARAPAHOE NATIONAL WILDLIFE REFUGE
ROUTT NATIONAL FOREST
ARAPAHOE NATIONAL FOREST
ROCKY MOUNTAIN NATIONAL PARK
Hayden Substation
HAYDEN
STEAMBOAT SPRINGS
Ault Substation (Recommended)
AULT
FORT COLLINS
SCALE OF MILES
COLORADO RIVER STORAGE PROJECT
TRANSMISSION SYSTEM
HAYDEN-AULT
345-KV TRANSMISSION LINE
LAND MANAGEMENT AREAS

XIII. MITIGATORY CONSIDERATIONS

60. Soil and Water

The adverse impacts to soil and water resources will be from roads constructed and any excavation done at the tower sites. This impact will be reduced if the presently constructed roads along the existing Hayden-Archer 230-kv Transmission Line are utilized and upgraded with proper drainage. New roads used for power line construction and maintenance will have an adverse effect on soil and water if not properly designed and constructed. To keep this adverse effect minimal, the following restrictions should apply for power line construction roads, spur roads to tower sites, and construction at the tower sites.

a. Permanent access road grades will be limited to a maximum of 8 percent.

b. Roads will not be constructed on sidehills that exceed 30 percent.

c. Road surfaces must be properly drained, stabilized, and maintained to prevent damage during all construction phases.

d. Roads not needed for future power line maintneance will be obliterated, revegetated and suitable drainage structures installed immediately after the road is no longer needed for line construction purposes.

e. Certain roads will be needed for future power line maintenance access. These roads will be mutually designated by agreement between the proponent and the affected landowner or land use agencies. These roads will be stabilized and maintained to acceptable standards to prevent damage. Road use by the public will be at the discretion of the respective administering agencies and private owners.

f. No roads would be used during power line construction when excessive damage will occur to them.

g. Where poles or other tower structure materials are skidded or transported to the tower sites by means other than roads, all ruts and tracks will be obliterated and the disturbed soil returned to its original slope and condition, and be revegetated.

h. Tower structures must be designed and constructed to conform with the terrain. Leveling and benching will not be allowed.

i. Limited clearing for access roads, tower sites, and conductor safety will minimize the impacts from soil erosion.

j. Construction specifications will require proper control of construction activities to minimize adverse impacts on the watershed.

61. Air Quality

Air pollution from dust and equipment emissions during construction will be minimized through contract specifications requirements and in accordance with applicable state and federal laws. These measures include dust abatement, regulation of open burning, and emission control systems for vehicles and construction equipment.

62. Wildlife

It is anticipated that disturbance to wildlife will be of a transitory nature. Experience has shown that once a transmission line is installed wildlife patterns shortly return to normal. Revegetation of cleared areas with native plant species would enhance the transmission line right-of-way as wildlife habitat. Known elk calving areas and grouse strutting grounds would be avoided, if possible. If construction is necessary in these areas, activity will be prohibited during the calving and strutting season.

63. Vegetation

Vegetative clearing will be limited to that necessary for the clearance and safety of the transmission line. Special care will be taken to prevent damage to the remaining vegetation. Trees to be removed or modified will be approved by the administering agency or landowner. In cleared areas, revegetation will take place upon completion of construction at the site and will conform as far as possible with the natural surroundings. In fragile

areas, access will be regulated to protect native vegetation. Periodic inspection of modified trees will be done to evaluate and control insects and disease.

Recreation

Impacts to the scenic values will be mitigated as described in Paragraph 65. The right-of-way, where practicable, will be made available for development by appropriate agencies for hiking trails, snowmobile courses and other compatible uses.

Aesthetics

Utility development must be planned to retain the aesthetic integrity of the areas along the corridor to the highest possible level commensurate with other ecological, environmental, and social considerations which are made in this planning effort.

To maintain integrity, the following criteria and guidelines are established to mitigate the aesthetic impacts:

a. The right-of-way will not be strip-cleared or have a tunnel appearance.

b. Tree removal will be limited to those which are necessary for structure construction, stringing the conductor, elimination of physical hazard to conductors, electrical clearance to the conductor, and those needed to blend the right-of-way with the natural surroundings.

c. If possible, the structures and conductors will be built before right-of-way clearing is done, except at the

structure sites and areas necessary for stringing the conductors. This will enable the landscape designer to blend the right-of-way with the land as well as the structures and conductors. The design of the right-of-way could come in stages as the structures are built and conductors strung.

d. Topping and pruning techniques will be used to soften right-of-way clearing and edge effects. Low-growing shrubs and other deciduous species such as aspen, choke-cherry, and oakbrush will not be removed unless they present a hazard to the line.

e. Highways and zoned routes of travel should be crossed at right angles. Long tangents of the power line should not be visible from these areas.

f. The transmission line design will use topographic and vegetative screening whenever possible to blend the line into the landscape.

g. Double-circuit towers through the Steamboat Springs area will be aesthetically pleasing such as the single pole tubular steel type.

h. Construction on ridge tops where the structures would be skylined will be discouraged.

i. All structures will be designed to blend with their surroundings. This could include painting, using different

configurations, using different materials and other means currently available to the designer when necessary.

j. Conductors and hardware will be nonreflective.

k. Transmission line location will be in accordance with the guides set forth in the "Environmental Criteria for Electric Transmission Systems" published by the United States Department of Agriculture and the United States Department of the Interior.

l. Clearing for the construction of the transmission line will be treated as a landscape project rather than a logging operation. Skidding with horses or rubber-tired vehicle will be used with special care taken to prevent damage to the remaining stand and other vegetative cover and soil.

66. Fire

The proposed right-of-way should be treated as follows to minimize fire danger:

a. Following design of the line, a slash disposal plan will be developed.

b. All heavy fuel concentrations will be removed from the right-of-way.

c. Burning will only be allowed under appropriate laws and regulations.

67. Grazing

The effect of transmission lines on domestic livestock is minor and would not affect grazing.

68. Social

The visual impacts will be mitigated as discussed in Paragraph 65 of this section.

If the line should fault, automatic safety features would de-energize the conductor instantaneously.

Inductive hazards at fence and utility crossing would be eliminated by grounding and through proper designs. All aircraft hazard areas will be marked according to FAA Advisory Circular 70/2460-2.C.

69. Areas Recommended for Special Consideration

The following areas require special aesthetic design consideration to integrate the line into the visual aspects of the environment:

a. The Steamboat Springs Area From Quarry Mountain to the Forest Service Boundary

This section of the corridor includes Quarry Mountain, the Yampa River, U.S. Highway 40, the Ramada Inn, Steamboat Ski Area and other subdivision developments. The design of these structures will be single pole, tubular steel or some other aesthetically pleasing design. The existing Hayden-Archer line structures will be removed from this section to reduce the number of lines in the area. The

special design structures will be double-circuited and designed to blend with the surroundings.

b. Buffalo Pass Crossing

Clearing techniques in the Buffalo Pass area will be designed to fit the line with the surroundings. In the Buffalo Pass area, there are spruce-fir timber stringers which form a unique snow fence pattern. These unusual formations must be avoided, if possible. Clearing must be held to a minimum and carefully designed to reduce visual impact and damage to the watershed.

c. State Highway 125 Crossing, About 6 Miles North of Walden, Colorado

Crossing State Highway 125 will be at a right angle and care will be taken not to locate the structures next to the highway. The North Park country is open and does not lend itself to blending of a transmission line into the terrain at this point.

d. Laramie River Road Crossing, About 8 Miles South of Woods Landing, Wyoming

This road will also be crossed at a right angle. The terrain in this area lends itself to blending the structures to soften the impact of the transmission line. The vegetative cover is mainly sagebrush and the terrain is rolling.

e. Boulder Ridge

This ridge has a fairly heavy stand of timber. However, the trees are relatively short and clearing should be limited. The "feathered" clearing technique will be used through the Boulder Ridge area.

f. U.S. Highway 287 Crossing, About 2 Miles North of Colorado-Wyoming border

This road crossing should be at a right angle with fairly long span to avoid placing tower structures next to the road. The rolling terrain could effectively reduce the visual impact at this crossing.

g. Interstate 25 Crossing, About 18 Miles Northeast of Fort Collins, Colorado

Crossing Interstate 25 is a key crossing along this corridor. The terrain is relatively flat and does not lend itself to blending the structure with the landscape. Interstate 25 should be crossed at a right angle with a long span to avoid structures next to the road. The Burlington Railroad parallels Interstate 25 and will need to be considered when locating the Interstate 25 crossing.

XIV. ONGOING COORDINATION

70. Information and Education

Public information meetings were held to inform the public of this project because of the associated impacts on the environment. These meetings were held at Steamboat Springs, Walden, and Fort Collins. The public was given an opportunity to comment. These meetings were proceeded by a press release broadly describing the proposal and announcing the public information meeting. The public information meetings were a joint effort of the Bureau of Reclamation, Forest Service, and the Bureau of Land Management to present the need for the powerline and to discuss environmental and ecological relationships. This gave the public an opportunity to become fully informed of the project's ramifications and to discuss the planned approach to the subject.

A preliminary draft of this report was furnished to the County Commissioners of Jackson, Larimer, Routt, and Weld Counties. Meetings were held with the respective counties and their planning boards. These meetings were held to review the proposal and to solicit local views of the proposed project. Oral questions were answered at the meetings and written comments were requested. These meetings were held as follows:

Jackson County	April 20, 1972
Routt County	April 20, 1972
Weld County	April 24, 1972
Larimer County	May 4, 1972

The majority of the oral comments were related to design of the transmission line. The views as expressed in these meetings will be incorporated in the design stage of this project.

Written comments will be included in the planning, design or construction of this proposal.

71. Political Implications

Formal announcements of this proposed corridor have not been made and it is not known what political implication there will be.

72. Coordination between Government Agencies

Joint meetings with the Bureau of Reclamation, Forest Service, and other Government agencies were held to discuss the proposed corridors. These meetings were held as follows: June 21, 1971, Denver, Colorado; July 9, 1971, Denver, Colorado; July 14, 15 and 16, 1971, a helicopter reconnaissance was made; October 4, 1971, Fort Collins, Colorado; November 11, 1971, Denver, Colorado (this was a meeting with the Bureau of Reclamation, Forest Service and other interested agencies, with one major landowner in attendance).

During the July meetings, it was agreed between the Bureau of Reclamation, Forest Service, and other agencies that a team would be set up to evaluate the proposed corridors. The team as set up included one member from the Bureau of Reclamation and one from the Forest Service. Actual evaluation of the proposed corridors, by the team, was started on September 7, 1971.

It is intended that close coordination will continue during the design and construction of this project. To achieve this objective during the design and construction phase, a Bureau of Land Management and a Forest Service liason officer have been assigned to the project. The Bureau of Land Management liason is a staff member of the Colorado State Office.

73. Additional Public Input

A letter dated September 29, 1972, was received from John A. King of the Law Offices of Corthell, King, McFadden and Nicholas, Attorneys for Bull Mountain Cattle Company and Hohnholz Ranch, Inc., in which Mr. King proposed an alternate route to Corridor No. 3S. This proposed route would branch southeasterly from Corridor No. 3S at the Laramie River and would make a loop approximately 5 miles to the south of Corridor No. 3S and then rejoin Corridor No. 3S on the east slope of Boulder Ridge. The main purpose of proposing the route was to locate the route on public lands where possible in this area. The exact route

location proposed by Mr. King was not studied in detail; however, a route passing through the same general area south of Eaton Reservoir was studied and was not recommended because of the greater impact on the environment.

The King proposal would also be less desirable than Corridors No. 3 or 3S in that this alternative would be longer, construction would be more difficult, access would be limited, more clearing would be required, the line would be at a higher elevation, and power losses would be greater.

XV. COSTS AND SCHEDULES

74. Estimated Construction Costs

The costs for constructing a 345-kv transmission line in the various corridors listed are basic estimated contract costs only. Design, right-of-way, road construction, clearing, and construction supervision costs are not included in these figures. Road construction and clearing costs were not included since new regulations for these operations will be applicable to this project, and no direct comparison for estimating these costs exists at this time. The estimated basic costs should only be used as a direct comparison of the different corridors, and not as a true estimated cost.

A more detailed study of the selected corridor will have to be made to arrive at a true cost estimate, which will include all of the estimated costs involved in the project.

The mileages shown for the various corridors were arrived at by scaling quad sheets and they must be considered to be a minimum estimated mileage for each corridor. Actual alinement in the selected corridor will tend to increase the mileage for the corridor.

Mitigating features were considered in the various corridors. It was recognized that improved appearance structures and helicopter

construction would be required at some points on the various corridors. These two items are reflected in the estimated costs. Operating costs were not considered in these estimates. No conclusion can be reached at this time as to which corridor would result in the least operating cost as the shorter corridors traverse rougher terrain and higher elevations and would cost more per mile to operate and maintain. Line reliability would also be reduced in sections of lines at higher altitudes.

Corridor No. 1 intersects Corridor No. 2 at Ute Pass. This combination of Corridors No. 1 and No. 2 is included in the cost estimate for comparison with the other corridors.

HAYDEN-AULT 345-KV TRANSMISSION LINE
COST SUMMARY
Basic Contract Costs

Corridor	Mileage	Estimated Cost 1973	
		Without Mitigation Features	With Mitigation Features
No. 1	148	11,510,000	12,440,000
No. 1N	148	11,000,000	12,230,000
No. 1NN	151	11,140,000	12,010,000
No. 1 and No. 2 (Ute Pass Crosstie)	148	10,700,000	12,310,000
No. 2	162	12,820,000	14,060,000
No. 2E	164	13,030,000	14,280,000
No. 2NN	151	11,910,000	12,910,000
No. 3-3S-3SN	160	11,450,000	15,890,000
No. 3S	155	11,320,000	15,760,000
No. 4	129	9,820,000	12,970,000
No. 5	172	12,430,000	12,600,000
No. 5S	170	12,280,000	12,450,000
No. 6	191	13,650,000	13,650,000
Recommended (No. 3)	160	11,450,000	15,890,000

75. Proposed Design and Construction Schedule

The Bureau of Reclamation plans to start designing the transmission line early in 1974 and complete construction in late 1977. The draft environmental statement will be submitted in July, 1973 to the Council on Environmental Quality. Substation design and construction will be coordinated with the line construction. All facilities are planned for completion and initial power delivery is to be made late in 1977.

APPENDIX A

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Angle Structure - A special structure of various designs to permit changing alignment or direction of the routing of a transmission line.

Cascading - A progressive failure of a power system or part of a system. Failure or loss of a single critical part such as a large heavily loaded transformer or transmission line, will cause the load to shift to other parts of the system in an attempt to supply the loads. If these parts of the system are then overloaded by this increase, the protective devices will trip causing these parts to be taken out of service. This progressive loss of transmission capability may cause the entire power system to fail.

Corridor - A corridor is a strip of land used in transmission line planning stages which is sufficient in width to provide latitude in locating one or more transmission lines therein, using topography and vegetation, in a manner to achieve the greatest harmony with the natural surroundings and the least impact on the environment.

Conductors - The cable over which electric energy is transported.

Dead End Structure - A special structure to permit attachment of each conductor at full line tension as opposed to suspension structure that only support the weight of the conductor. Dead end structures can be used for tangent and angle structures.

Distribution Lines - Low voltage electric powerlines usually 69 kilovolt or less.

Hardware - Various bolts, hangers, braces, and connectors used to assemble the structure and attach the insulators to the conductors or insulators to the structure.

Insulators - A material used to support the conductor from the structure and isolate the energized portions of the transmission line from the nonenergized portions.

Intermediate Zone - The broad area in which soil, climate, and topography lend themselves to the production of timber and summer forage. It contains most of the commercial timberlands of the forest.

Organizations -

North Central Power Study - This study was made by the power study entities in the North Central and Rocky Mountain areas of the United States. The purpose of this study was to promote the coordinated development of electric power in the North Central United States. This study explores the projected power requirements and possible developments in the study area.

Platte River Municipal Power Association - An organization of municipal-owned power users that have organized to develop a source of power to meet their combined power requirements. This development will include development of generating stations and transmission systems to meet their needs. At present this association consists of the cities of Estes Park, Fort Collins, Longmont, and Loveland.

Southwest Energy Study - A study of the energy requirements of the southwest and practicability of meeting these requirements by using the Colorado River Basin coal deposits. This study explores the impact on life and the environment that will take place when the resources are developed and alternatives that are presently available. This study is developed by the Department of the Interior with assistance and recommendations of affected Governmental agencies, State agencies, resource organizations, and educational institutions.

Tri-State Generation and Transmission Cooperative - An organization formed by the Rural Electric Associations of Colorado, Nebraska, and Wyoming. The function of this organization is to provide an adequate source of electric power for the members. The activity includes development of generating stations and a transmission system.

Western Colorado Resource Study - A study was conducted jointly by the Bureau of Reclamation, Salt River Power District, Colorado-Ute Electric Association, Platte River Municipal Power Association, and Tri-State Generation and Transmission Cooperative. This study reviewed the planned generation facilities at Hayden and Craig, Colorado, their related transmission facilities, and the effect of this planning on existing systems they will be integrated with.

Western Systems Coordinating Council - A council consisting of the bulk electric power suppliers in 13 western states and British Columbia, Canada. The function of this council is to coordinate the planning and development of bulk transmission

networks and interties to other electric power systems. Membership in this council is open to all bulk electric power suppliers in the represented area. Members include representatives from public and private power organizations.

Reliability - Measure of an electric power system to provide a continuous, uninterrupted flow of power. Reliability is not easily quantified, but can be improved by avoiding natural and man-made hazards, separating transmission lines widely enough so the possibility of a common cause would not result in simultaneous outages and using adequate design and construction standards.

Right-of-way - A legal right to use a strip of land belonging to others for construction and operation of a transmission line. This right restricts the use of the land to uses that are compatible with the transmission line. The normal width of right-of-way to be acquired for this 345-kv transmission line is 190 feet. In some areas, additional right-of-way would be acquired to ensure electrical clearance or for operation and maintenance roads.

Roadless Areas - An area inventoried by the U. S. Forest Service on National Forest lands, which does not have any constructed roads and is primarily undeveloped in nature (i.e., no constructed roads, utilities or commercial development).

These inventoried roadless lands have been catagorized into the following management units.

1. Nondeveloped Management Units - Manage without further development consistent with Secretary of Agriculture regulations for National Forest Wilderness and Primitive Areas: Part 251, Title 36, C.F.R. Sections 251.70 to 251.84 and 251.86.

2. Partly-developed Management Units - Manage to preserve and enhance back country, scenic, alpine, canyon or other unique characteristics without constructed permanent roads but with the provision for primitive improvements.

3. Multi-developed Management Units - Manage in varying intensities for many uses and activities as appropriate for the management situation. Permanent roads and Public Service developments will normally be required.

Category 1 management units require a study to determine if they qualify to be recommended for possible inclusion into the National Wilderness Preservation System.

Category 2 and 3 units will need an Environmental Statement before any development is done.

Structure - A means of supporting the conductor. A structure may be made of many types of material and constructed in various shapes.

Substations - A facility at the terminal of a transmission line to transfer the electrical energy to other transmission or distribution lines of different voltages.

Transmission Line - A facility for transmitting electrical energy at high voltage from one point to another point. Transmission line voltages are normally 115-kilovolt or larger.

Travel Influence Zone - A strip of varying widths along sleected highways, roads, and trails dedicated to the purpose of providing natural-like forest or grassland atmosphere to the traveler and recreation user.

Utility Lines - Low voltage, usually 69-kilovolt or less, electric powerlines, telephone lines, or other like facilities.

Water Influence Zone - A strip of varying widths along designated streams, rivers, lakes, and reservoirs where basic values are associated with the quantity and quality of the water and the attractiveness of adjoining lands. It also provides a natural forest or grassland atmosphere to the recreational user.

APPENDIX B

SUBSTATION REQUIREMENTS

Ault Substation

This substation will be a new installation located approximately 5 miles northwesterly of the town of Ault, Colorado. Several locations were investigated before a choice was made. To place the substation further south would be placing it in an irrigated farmland area and population density increases to the south of the selected site. The selected location is a good point to deliver power for distribution to the power using points to the south and west. Some power will also be used to the east for the projected increase in pumped irrigation.

The electricity-use area to be served by the proposed new transmission line extends eastward from the foothills of the Front Range west of Fort Collins to Brush, Colorado, and south of Fort Collins to Longmont. The existing 115-kv Cheyenne-Greeley and authorized 230-kv Archer-Weld lines pass north to south between Fort Collins and Greeley. A substation site located near these lines was selected with the authorized Archer-Weld line to be rerouted through the substation. With this arrangement, the multiple lines into the Ault Substation will provide the system reliability desired. It is anticipated that in addition to the 230-kv lines to Archer and Weld Substations, two 230-kv lines will be required initially to carry the power to local distribution centers in the use area.

The site selected is just north of the junction of the Flatiron-Cheyenne 115-kv line with the existing Cheyenne-Greeley 115-kv line. The topography is gently rolling hills. Drainage should be good. The low hills will help to screen the substation from view. Present use of the land is dryland wheat farming. The existing Black Hollow oil field is about 1 mile northwest of the proposed site. The nearest principally traveled highway is Colorado Highway 14, about 1½ miles to the south.

There are no residential sites near enough to be affected by noise. The substation is to be located in a manner that will use distance and natural screening as much as possible to minimize environmental impact.

The actual substation site will be large enough to accommodate any projected increase in load which requires an enlargement of the substation facilities. It is now anticipated that the substation will become a major electric power load center for the residential and industrial complex that exists in the area. The industrial growth south of the substation is expected to continue and is limited mostly by the limited water supply that is available.

The design of the new substation will be a modern low profile design. The design will be in accordance with the "Environmental Criteria for Electric Transmission Systems" (see Appendix D) as published by the Department of the Interior and Department of Agriculture.

An alternate site located about a half mile south of Colorado Highway 14 was inspected. This site was limited in size and was surrounded by irrigated fields on all sides. Foundation and drainage conditions were not nearly as good as at the selected site. The nearness to Colorado Highway 14 and absence of hills for screening would result in greatly increased visual impact.

Hayden Substation

The Hayden Substation will be enlarged to meet the required increase in voltage and power requirements. This substation as it now exists has a 230-kv section on the west side and a 138-kv section on the east side. The control room is on the south side of the 230-kv section. The new 345-kv section will be constructed on the west side of the existing installation leaving enough space for enlargement of the 230-kv section. This area was leveled and drained at the time of the first construction. Design of the 345-kv section will be of a design that will be compatible with the existing structures and surrounding features.

Construction Materials

All conductors and structure hardware will be nonreflective type. The new Ault Substation will use materials of high strength, basically steel, to facilitate the low profile design. The Hayden Substation will use steel structures compatible with existing installations. The Ault Substation and some transmission line

structures will be painted to blend the structures into the existing landscape. Consideration will be given to the shortage of resources and national resource priorities in the design of this project.

APPENDIX C

BIOLOGICAL SPECIES LISTS

Key *

M - Found primarily in higher areas (above 8,000 ft)

L - Found primarily in lower areas (below 8,000)

A - Found in all areas

* Helen Moenke, Ecology of Colorado Mountains to Arizona Deserts (Denver, Colo: Denver Museum of Natural History, 1971), p. 12.

Vegetation

Alder	Alnus spp.
Aspen	Populus tremuloides
Bitterbrush	Purshia tridentata
Bluegrass	Poa spp.
Bromes	Bromus spp.
Buffaloberry	Shepherida argentea
Chokecherry	Prunus virginiana
Cottonwood	Populus deltoides
Douglas fir	Psuedotsuga menziesii
Fescues	Festuca spp.
Grama	Bouteloua spp.
Blue	B. gracillus
Side oats	B. curtipendula
Hawthorn	Crataegus spp.
Indian rice grass	Oryzopsis hymenoides
Juniper	Juniperus scopulorum
Little blue stem	Andropogon scoparius
Maple	Acer glabrum
Mountain mahogany	Cercocarpus montanus
Mountain muhly	Muhlenvergia montana
Needlegrass	Stipa spp.
Green needlegrass	S. viridula
Needle & thread grass	S. comata
Oakbrush	Quercus gambellii
Pine	Pinus spp.
Lodgepole pine	P. contortu
Pinon pine	P. edulis
Ponderosa pine	P. ponderosa
Limber pine	P. flexilis
Red osier dogwood	Cornus stolonifera
Sagebrush	Artemisia spp.
Big sage	Artemisia tridentata
Black sage	Artemisia spp.
Serviceberry	Amelanchier spp.
Snowberry	Symphoricarpos spp.
Spruce	Picea spp.
Colorado blue spruce	P. pungens
Englemann spruce	P. englemanni
Subalpine fir	Abies lasiocarpa
Willow	Salix spp.
Wheatgrass	Agropyron spp.
Bluebunch wheatgrass	A. spicatum
Western wheatgrass	A. smithii

Game Mammals

Abert's squirrel	M	Sciurus aberti
Antelope	L	Antilocapra americana
Bighorn sheep	M	Ovis canadensis
Black bear	M	Ursus americanus
Cottontail rabbit	A	Sylvilagus spp.
Elk	M	Cervus canadensis
Jack rabbit	L	Lepus californicus
Moose	M	Alces alces
Pika	M	Ochotona spp.
Pine squirrel	M	Tamia sciurus hudsonicus
Rock squirrel	L	Spermophilus variegatus
Rocky Mountain mule deer	A	Odocoileus hemionus
Snowshoe rabbit	M	Lepus americanus
Western fox squirrel	L	Sciurus niger
Whitetailed deer	L	Odocoileus virginianus

Non-game Mammals

Badger	A	Taxidea taxus
Beaver	A	Castor canadensis
Bobcat	A	Lynx rufus
Chipmunk	A	Eutamias spp.
Coyote	A	Canis latrans
Golden-mantle ground squirrel	A	Spermophilus lateralis
Gopher	A	Citellus tridecemlineatus
Gray fox	L	Urocyon cinereo argenteus
Lynx	M	Lynx canadensis
Marmot	A	Marmota spp.
Marten	M	Martes americana
Mice	A	Peromyscus spp. & Microtus spp.
Mink	A	Mustela vison
Mountain lion	M	Felis concolor
Muskrat	A	Ondatra zibethicus
Otter	L	Lutra canadensis
Pocket gopher	A	Geomys spp.
Porcupine	A	Erethezon dorsatum
Raccoon	A	Procyon lotor
Rat	A	Neotoma spp.
Red fox	A	Vulpes fulva
Richardson's ground squirrel	M	Spermophilus richardsonii
Rock squirrel	L	Spermophilus variegatus
Skunk	A	Mephitis mephitis
Swift fox	L	Vulpes velox
Thirteen lined ground squirrel	M	Spermophilus tridecemlineatus
Weasel	A	Mustela spp.
Wolverine	M	Gulo luscus

Fish

Brook trout	M	Salvelinus fontinalis
Brown trout	A	Salmo trutta
Carp	L	Cyprinus carpio
Channel catfish	L	Ictalurus punctatus
Chub	A	Hybopsis spp.
Coho salmon	M	Oncorhynchus kisutch
Crappie	L	Pomoxis spp.
Cutthroat trout	M	Salmo clarki
Lake trout	M	Salvelinus namaycush
Large mouth bass	L	Micropterus salmoides
Rainbow trout	A	Salmo gairdneri
Rocky Mountain whitefish	M	Prosopium williamsoni
Suckers	A	Catostomus spp.
Sunfish	L	Lepomis spp.
Walleyed pike	L	Stizostedion vitreum
White bass	L	Morone chrysops
Yellow perch	A	Perca flavescens

Birds

American bittern	L	Botaurus lentiginosus
American coot	L	Fulica americana
American goldfinch	L	Spinus tristis
American widgeon	M	Marcea americana
Audubon's warbler	M	Dendroica auduboni
Baird's sandpiper	A	Erolia armericanus
Bank swallow	L	Riparia riparia
Barn owl	L	Tyto alba
Barn swallow	A	Hirundo rustica
Black-capped chickadee	A	Parus atricapillus
Black-crowned right heron	L	Nycticorax nycticorax
Black-headed grosbeak	L	Pheucticus melanocephalus
Black tern	L	Chilidonias niger
Blue grouse	M	Dendragapus obscurus
Blue-winged teal	A	Anas discors
Brewer's blackbird	A	Euphagus cyanocephalus
Brewer's sparrow	L	Spizella breweri
Brown creeper	A	Certhia familiaris
Bufflehead	L	Bucephala albeola
Burrowing owl	L	Speotyto cunicularia
Canada goose	M	Branta canadensis
Canvasback	M	Aythya valsineria
Canyon wren	L	Salpinctes mexicanus
Cassin's finch	A	Carpodacus cassinii
Catbird	L	Dametalla carolinensis
Cedar waxwing		Bombycilla cedrorum
Chipping sparrow	L	Spizella passerina

Birds (continued)

Cinnamon teal	L	Anas cyanoptera
Cliff swallow	A	Petrochelidon pyrrhonota
Common crow	L	Corvus brachyrhynchos
Common goldeneye	L	Bucephala clangula
Common merganser	A	Mergus merganser
Common snipe	A	Capella gallinago
Cooper's hawk	A	Accipter cooperii
Brown-headed cowbird	L	Molothrus ater
Double-crested cormorant	A	Phalacrocorax auritus
Downy woodpecker	A	Dendrocopos pubescens
Eastern kingbird	L	Tyrannus tyrannus
Ferruginous hawk	L	Buteo regalis
Forster's tern	L	Sterna forsteri
Flycatchers	A	Empidonax spp.
Gadwall	A	Anas stepera
Golden eagle	A	Aquila chrysaetos
Goshawk	A	Accipiter gentilis
Gray jay	M	Perisoreus canadensis
Gray-headed junco	A	Junco caniceps
Greater yellowlegs	L	Totanus melanoleucus
Great-horned owl	A	Bubo virginianus
Grebe	L	Podiceps spp.
Green heron	L	Butorides virescens
Green-winged teal	A	Anas carolinensis
Gull	A	Larus spp.
Hairy woodpecker	A	Dendrocopos villosus
Hermit thrush	M	Hylocichla guttata
Hooded merganser	L	Lophodytes cucullatus
House finch	A	Carpodacus mexicanus
House sparrow	A	Passer domesticus
House wren	A	Troglodytes aedon
Hummingbird	A	Selasphorus spp.
Killdeer	A	Charadrius vociferus
Belted kingfisher	A	Megaceryle alcyon
Horned lark	A	Eremophila alpestris
Lark bunting	L	Calamospiza melanocorys
Lark sparrow	A	Chondestes grammacus
Lazuli bunting	L	Passerina amoena
Least bittern	L	Ixobrychus exilis
Lesser goldfinch	L	Spinus psaltria
Lesser scaup	L	Aythya affinis
Loggerhead shrike	L	Lanius ludovicianus
Long-billed curlew	L	Numenius americanus
Long-eared owl	L	Asio otus
Longspur	L	Calicarius spp.
Magpie	L	Pica pica
Mallard	A	Anas platyrhynchos

Birds (continued)

Marsh hawk	L	Circus cyaneus
Western Meadowlark	L	Sturnella neglecta
Mountain bluebird	M	Sialia currucoides
Mountain chickadee	M	Parus gambellii
Mountain plover	L	Eupoda montana
Mourning dove	A	Zenaidura macroura
Common nighthawk	M	Chordeiles minor
Northern gold eagle	L	Haliaetus leucocephalus alaseanus
Northern shrike	L	Lanius excubitor
Northern three-toed woodpecker	L	Picoides tridactylus
Nuthatch	A	Sitta spp.
Oranged-crowned warbler	A	Vermivora celata
Oregon junco	A	Junco oreganus
Bullock's oriola	L	Icterus bullockii
Pectoral sandpiper	L	Erolia melanotos
Pigeon hawk	A	Falco columbarius
Pine siskin	A	Spinus pinus
Pinon jay	A	Gymnbrhinus cyanocephalus
Pintail duck	A	Anas acuta
Poor-will	L	Phalaenoptilus nuttallii
Prairie falcon	L	Falco mexicanus
Common raven	M	Corvus corax
Red crossbill	A	Loxia curvirostra
Redhead	L	Aythya americana
Red-shafted flicker	A	Colaptes cafer
Red-tailed hawk	A	Buteo jamaicensis
Red-winged blackbird	A	Agelaius phoenicus
Ring-necked duck	A	Aythya collaris
Ring-necked pheasant	L	Phasianus colchicus
Robin	A	Turdus migratorius
Rock wren	A	Salpinctes obsoletus
Rosy finch	M	Leucosticte spp.
Rough-legged hawk	L	Buteo lagopus
Ruby-crowned kinglet	M	Regulus calendula
Ruddy duck	L	Oxyura jamaicensis
Rufous-sided towhee	A	Pipilo erythrophthalmus
Sage grouse	A	Centrocercus urophasianus
Saw-whet owl	M	Aegolius acadicus
Savannah sparrow	L	Passerculus sandwichensis
Say's phoebe	L	Saynoris saya
Scrub jay	A	Aphelocoma coerulescens
Sharp-shinned hawk	A	Accipiter striatus
Sharp-tailed grouse	L	Pedioecetes phasianellus
Short-eared owl	L	Asio flammeus
Shoveler	L	Spatula clypeata
Solitary sandpiper	L	Tringa solitaria
Snow goose	L	Chen hyperborea
Song sparrow	A	Melospiza melodia

Birds (continued)

Sora rail	L	Porzana carolina
Sparrow hawk	A	Falco sparverinus
Spotted sandpiper	A	Actitis macularia
Starling	A	Sturnus vulgaris
Steller's jay	A	Cyano citta
Swainson's hawk	A	Buteo swainsoni
Swainson's thrush	A	Hylocichla ustulata
Townsend's solitaire	L	Spizella arborea
tree sparrow		
Tree swallow	A	Iridoprocene bicolor
Turkey	L	Meleagris gallopavo
Turkey vulture	M	Cathartes aura
Vesper sparrow	L	Pooecetes gramineus
Violet-green swallow	A	Tachycineta thalassina
Vireo	A	Vireo spp.
Virginia rail	L	Rallus limicola
Virginia's warbler	L	Vermivora virginiae
Western kingbird	L	Tyrannus verticalis
Western tanager	L	Piranga ludoviciana
Western wood peewee	A	Contopus sordidulus
White-faced ibis	L	Plegadis chihi
White pelican	L	Pelecanus erythrorhynchos
White-tailed ptarmigan	M	Lagopus leucurus
White-throated swift	A	Aeronautes saxalis
Wilson's phalarope	L	Steganopus tricolor
Wilson's warbler	M	Wilsonia pusilla
Yellow-bellied sapsucker	A	Syphyrapicus varius
Yellow-headed blackbird	L	Xantho spp.
Yellowthroat	L	Geothlypis trichas
Yellow warbler	A	Dendroica petechia

Reptiles and Amphibians

American toad	L	Bufo americanus
Black-headed garter snake	L	Tantilla nigriceps
Blue racer	L	Coluber constrictor
Common bullsnake	A	Pituophis catenifer
Common prairie rattler	L	Crotalus viridis
Gray garter snake	H	Thamnophis elegans
Leopard frog	A	Rana spp.
Mountain toad	H	Bufo boreas
Northern earless lizard	L	Holbrookia maculata
Northern plateau lizard	A	Sceloporus undulatus
Northern prairie lizard	L	Sceloporus undulatus

Reptiles and Amphibians (Continued)

Painted turtle		Chrysemys picta
Plains garter snake	L	Thamnophis radix
Plains spadefoot toad	L	Scaphiopus bombifrons
Red-barred garter snake	L	Thamnophis sirtalis
Sagebrush lizard	L	Sceloporus graciosus
Short-horned lizard	A	Phrynosoma douglassii
Six-lined race runner	L	Cnemidophorus sexlineatus
Snapping turtle		Chelydra serpentina
Spiny softshell turtle		Trionyx spp.
Three-lined tree frog	M	Pseudacris nigrita
Tiger salamander	A	Ambystoma tigrinum
Water snake	L	Natrix sipedon
Western box turtle		Terrapene ornata
Western hog-nosed snake	L	Heterodon nasicus
Western milk snake	M	Lampropeltis doliata
Western smooth green snake	L	Opheodrys vernalis
Western toad	A	Bufo cognatus
Western whip	L	Masticophis flagellum
Woodhouse's toad	L	Bufo woodhousii

Rare and Endangered Species

American peregrinefalcon	Falco peregrinus
Black-footed ferret	Mustela nigripes
Greater sandhill crane	Grus canadensis tabida
Greenback cutthroat trout	Salmo clarki stomias
Grizzly bear	Ursus-hoiribilis
Lesser prairie chicken	Tympanuchus pallidicinctus
Prairie falcon	Falco mexicanus
Spotted bat	Euderma maculatum

APPENDIX D

REFERENCES

Public Documents

United States Department of Agriculture, Final Environmental Statement of a Proposal to Construct a Single 345 Kv Powerline from Waterflow, New Mexico, to Tucson, Arizona, by the Tucson Gas and Electric Company, May 1972.

United States Department of Agriculture, Soils of the Western United States, A joint Regional Publication by the Agricultural Experiment Stations of the Western States Land Grant Universities and Colleges with Cooperative Assistance by the Soil Conservation Service, September 1964.

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United States Department of the Interior, Bureau of Land Management, The Impact of Power Transmission Lines and Their Effect on the Southwest Environment, September 1970.

United States Department of the Interior, Bureau of Reclamation, Safety and Health Regulations for Construction, September 1971.

United States Department of the Interior, Geological Survey, A Procedure for Evaluation Environmental Input, Circular 645.

Reports

Construction Safety Act of 1969 (Public Law 91-54), Regulations as They Appear in the Federal Register of April 17, 1971, Volume 36, Number 75, and as amended.

Experiment Station, E. M. Payne and D. S. Romine, Land Resource Areas of Colorado, General Series 727, Colorado Experiment Station, April 1960.

North Central Power Study, Report of Phase I, Volume 1, October 1971.

Southwest Energy Study, Appendix A, Report of the Power Development and Economic Effects Work Group, February 1972.

Reports (Continued)

Tri-State Generation and Transmission Association, Inc., Environmental Analysis For Proposed 230 Kv Transmission Line from Wray to Brush (Beaver Creek), Colorado.

Western Systems Coordinating Council, Summary of Loads and Resources, April 1971.

Western Colorado Resource Study, Report of Transmission Task Force, Phase III Study, April-October 1971.

Unpublished Material

Anderson, Roan C. District Ranger, Rough Draft of a Multiple Use Survey Report, Phase I, United States Bureau of Reclamation, Hayden-Ault Power Transmission Line by Roosevelt National Forest, Red Feather District, November 11, 1971.

Stage I, Environmental Analysis, Black Hills National Forest, For a Proposed 230 Kv Transmission Line.

APPENDIX E

CORRESPONDENCE

RAYMOND H. SIMPSON
President

HOWARD M. SHULTS
Register

WESLEY E. WOODWARD
Engineer

W. H. PATTISON
Director
Mineral Department

C.R.S.P.

BOARD OF LAND COMMISSIONERS

DEPARTMENT OF NATURAL RESOURCES
STATE OF COLORADO
201 COLUMBINE BUILDING
1845 SHERMAN ST., DENVER, COLORADO 80203

November 15, 1971

NOV 17 1971

To	Surname	Date
224	[illegible]	11-18-71
200	[illegible]	11-18
	[illegible]	11-23

Mr. James M. Ingles, Regional Director
U. S. Bureau of Reclamation
Regional Office, Region 7
Building 20, Denver Federal Center
Denver, Colorado 80225

Dear Mr. Ingles:

Re: Proposed Hayden-Ault Power Transmission Line

After attending the meeting of November 11 at which studies and recommendations on the merits of several corridors for the transmission line were presented, Mr. Dale Shaw of the Colorado State Forest Service and myself have prepared some comments.

Routes 1 and 2 and several alternates would cross the Medicine Bow Range at Ute Pass. While I had previously indicated that this would be acceptable to the State, we now feel that any route in this area would probably pass through or near the East Sand Hills.

The East Sand Hills are located in Section 31, T. 10 N., R. 77 W. and Section 36, T. 10 N., R. 78 W. The area of these Sand Hills and adjacent lands has been set aside as a Natural Area in the Land Board's State Forest Management Plan, with no vehicular access. The Plan states that "the ecology of the Sand Hills is believed to be very fragile. For this reason, intensive studies will be made of the area to determine possible impacts of heavy use." It has been proposed that this be made a recreation area, but such use, or any other use, is now ruled out until studies have indicated what can be allowed here.

We urge that no transmission line corridor be placed in this area.

Since we had previously strongly objected to Route 4 through the southern part of the Forest, we now endorse Route 3 along the present transmission line. It, alone, would not interfere with the plans for the State Forest.

Yours very truly,

STATE BOARD OF LAND COMMISSIONERS

Wesley E. Woodward

Wesley E. Woodward
Engineer

WEW:mlp

cc: Mr. Dale Shaw

C.R.S.P.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

ROOSEVELT NATIONAL FOREST
ROCKY MTN. BANK BUILDING
FORT COLLINS, COLORADO 80521

ADDRESS REPLY TO FOREST SUPERVISOR AND REFER TO

FILE COPY
Bur. of Recl.
Region 7
NOV 22 1971

November 19, 1971

Mr. C. W. Griffin, Regional Engineer
Bureau of Reclamation, Region 7
Building 20, Denver Federal Center
Denver, Colorado 80225

Dear Mr. Griffin:

This letter is in reply to your November 11, 1971 request for written statements on the Hayden-Ault 345KV Transmission Line corridor.

Because of environmental concerns, we can see only three alternatives for corridors on or near the Roosevelt National Forest. These alternatives are listed by priority.

Alternative #1.

Upgrade the existing Hayden-Archer line to carry the entire load. If this is not possible, we need factual data to show why it is not.

This alternative meets with item 2 of B, Selection of a Proposed Route or corridor, in "Environmental Criteria For Electric Transmission Systems" which was developed by the Department of Agricultire and the Department of Interior.

Alternative #2.

Utilize the existing Hayden-Archer corridor for the Hayden-Ault Transmission Line. This meets with item 3 of B, Selection of a Proposed Route or Corridor.

Alternative #3.

Select a corridor which does not cross the Roosevelt National Forest or adjacent lands. This alternative would mean looking for a corridor which would have a lesser environmental impact than alternative #1 or #2. It could mean locating another power source, a different method of producing the power, transportation of raw materials to a different site or other modifications.

It appears that all of the criteria for selection of a Proposed Route or Corridor can be met in these alternatives. Corridor #3 can be considered only if alternative #1 is absolutely impossible. Alternative #3 should also receive full consideration before alternative #2 is selected.

Under existing conditions we feel that the Hayden-Archer Transmission Line corridor is the last corridor available for transmission lines on the Roosevelt National Forest. We also feel that two transmission lines are the maximum that can be allowed in this corridor.

A Phase I Multiple Use Survey Report has been prepared on the proposed corridors for the Hayden-Ault Transmission Line. It goes into detail on why we have only the three alternatives listed above. However, it has not been fully reviewed on the Forest or in our Regional Office. We should have an approved copy to provide the Bureau of Reclamation by January 31, 1972.

Sincerely,

W. K. Kelso

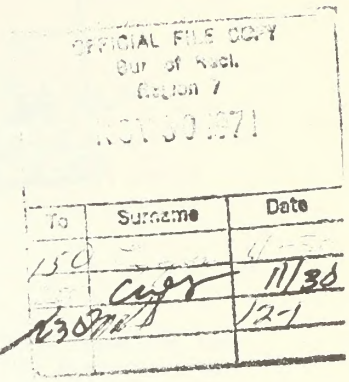
W. K. Kelso
Forest Supervisor

C.R.S.P.

THE STATE HISTORICAL SOCIETY OF COLORADO

Colorado State Museum, 200 Fourteenth Avenue, Denver 80203

November 29, 1971



Mr. James M. Ingles
Regional Director
US Bureau of Reclamation
Region 7
Building 20
Denver Federal Center
Denver, Colorado 80225

Re: 7-150
Hayden-Ault 345-Kv Transmission Line

Gentlemen:

We know of no significant historic or archaeological sites or structures which will be adversely affected by the work proposed under the above referenced project.

Sincerely,

W. E. Marshall
Executive Director

Acting for the State Liaison Officer

552

C.R.S.P.

WYOMING · RECREATION · COMMISSION

East 25th Street, Box 309, Cheyenne, Wyo. 82001 Telephone: Area Code 307 — 777-7695

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Morse Lee
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e Redman
is 82515

STANLEY K. HATHAWAY
Governor

PAUL H. WESTEDT
Director

OFFICIAL FILE COPY
Bur. of Rec.
Region 7
DEC 01971

To	Subject	Date
154	Eng.	12-10
200		12-13
600	A. Wattle	12-23
620		

December 8, 1971

Mr. James M. Ingles
Regional Director, Bureau of Reclamation
United States Department of the Interior
Building 20, Denver Federal Center
Denver, Colorado 80225

Dear Mr. Ingles:

Thank you for your letter of November 19 (7-150). You have requested the Wyoming Recreation Commission to advise you of any and all historical or archaeological features which may be affected by any of the alignment corridors which are being considered for the proposed Hayden-Ault 345-KV Transmission Line. According to my investigation in the matter, the one route which you have selected in Wyoming, Number 3, would not affect any sites of important historical significance. Concerning archaeologic sites, you may contact:

George Frison, Head, Department of Anthropology,
University of Wyoming, Laramie, Wyoming 82070

Dr. Frison should be able to advise you of any or all important archaeologic sites in the same area.

There is one other aspect concerning the area in Southern Wyoming, which contains alignment alternative Number 3, of which you should probably be apprized. An article appeared on page 11 in the Casper Star-Tribune, dated Monday, November 22, 1971, and entitled "Scenic, Geologic Area Development Has Staunch Foes." If you care to peruse the article, I have had it copied and enclose it for you. It seems to me that the article brings to the attention of the public at least two other aspects concerning the area through which alignment alternative Number 3 has been plotted. Namely, that the area contains significant geologic features of which the University of Wyoming is cognizant, and also, that there obviously is an awareness by environmentalists who consider the area important for aesthetic and recreational reasons.

For more information concerning the area of Southern Wyoming with which you may become involved, I would suggest your writing to the Head of the Geology Department at the University of Wyoming in Laramie, and to any others mentioned in the Star-Tribune article.

I hope we managed to give you the assistance you needed. Thank you.

Sincerely,

Mark Junge

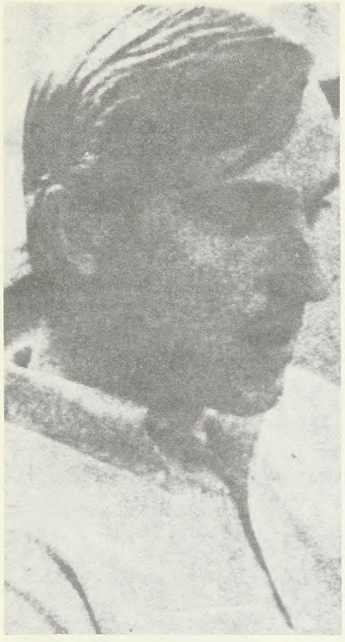
Mark Junge
Historian

NOTICE
If you detach enclosures, please insert your code number.....

MJ/acd

Encl.

THE CASPER STAR TRIBUNE, NOVEMBER 22, 1971, page 11



Dr. J. R. STEIDTMANN
. . . 3-dimension studies

Scenic, geologic area development has staunch foes

By DICK KELSO

LARAMIE — Plans for dividing over 80,000 "unique" acres of Wyoming - Colorado land into small homesites have been attacked by a local environmentalist.

"I personally don't care for Colorado businessmen selling some of Wyoming's most valuable country to Texas developers for use by out-of-state tourists with their summer homes," said Paul Bujak.

A Texas-based land developing firm is negotiating an option on the 57,000 acre Chimney Rock Ranch, 19 miles south of Laramie. The ranch, named after a huge erosion feature also called Camel or Cattle Rock, is owned by the 23-member Chimney Rock Grazing Association.

Only one member, a resident of Carpenter, is from Wyoming. The other 22 live in Ft. Collins, Longmont or other northern Colorado communities, according to Bujak. The ranch straddles the Wyoming-Colorado border.

The Texas firm has plans to divide the land into five-acre to fifteen-acre homesites. Bujak has been unable to contact the owners about the plans, but he said a Laramie engineering firm has already completed a ground water survey for the homesites.

Bujak, a self - termed - "environmental researcher," left the geology graduate school at UW when the last session of the legislature met, to work on a Green River study.

"Since then," he said, "I have been working with state and local officials on environmental matters."

The ranch's most interesting features — Chimney Rock, festoon cross-stratification and other sedimentary features — are easily accesible by a dirt road, Albany County 34. The area has sedimentary deposits of the Fountain and Casper formation, and a large amount of Sherman Granite.

University of Wyoming geologists place the ages of the Fountain and Casper Formations at 200-250 million years; the Sherman Granite at close to a billion and a half years old.

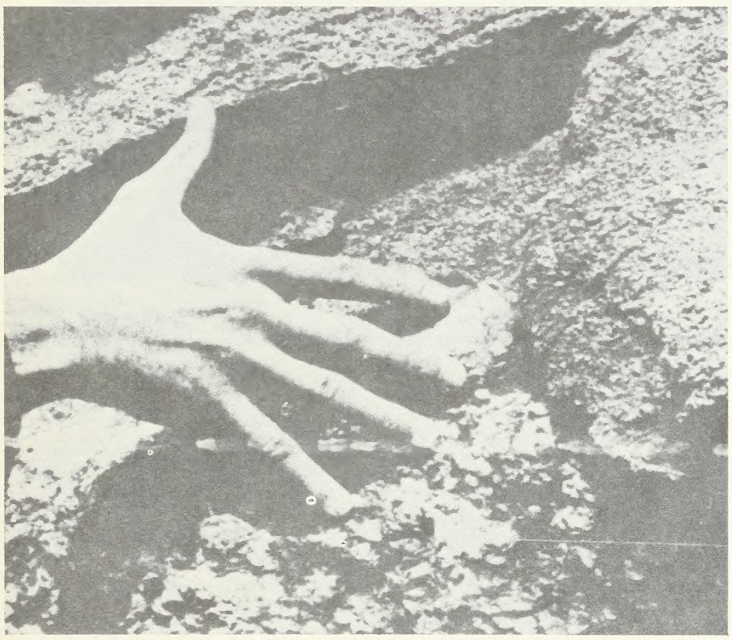
At one point on field trip through the area, Bujak pointed to where the Fountain rest on the Sherman Granite.

"I can place my hand over a billion years of lost geologic history," he said. "This is just one of the things that make this area unique."

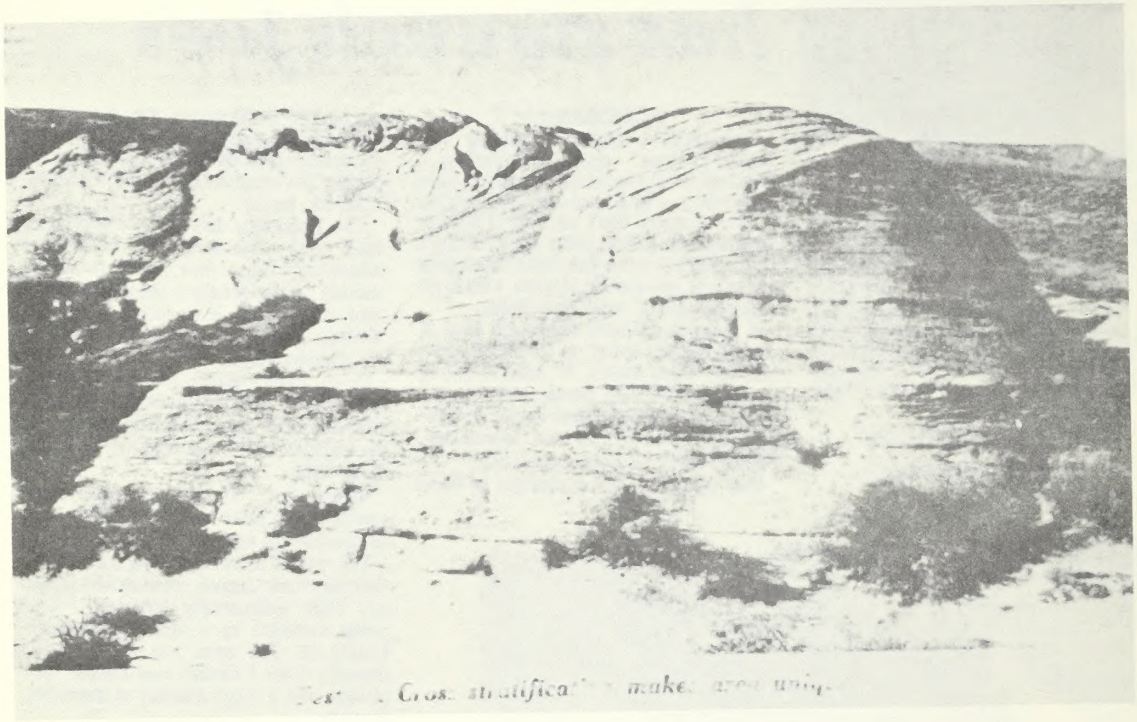
That term was further substantiated by Dr. J. R. Steidtmann, a geology professor and specialist in sedimentary deposits at the University of Wyoming.

Steidtmann explained the area is rich in examples of "festoon cross-stratification." The term describes trough-shaped layering of sedimentary deposits in the Casper formation.

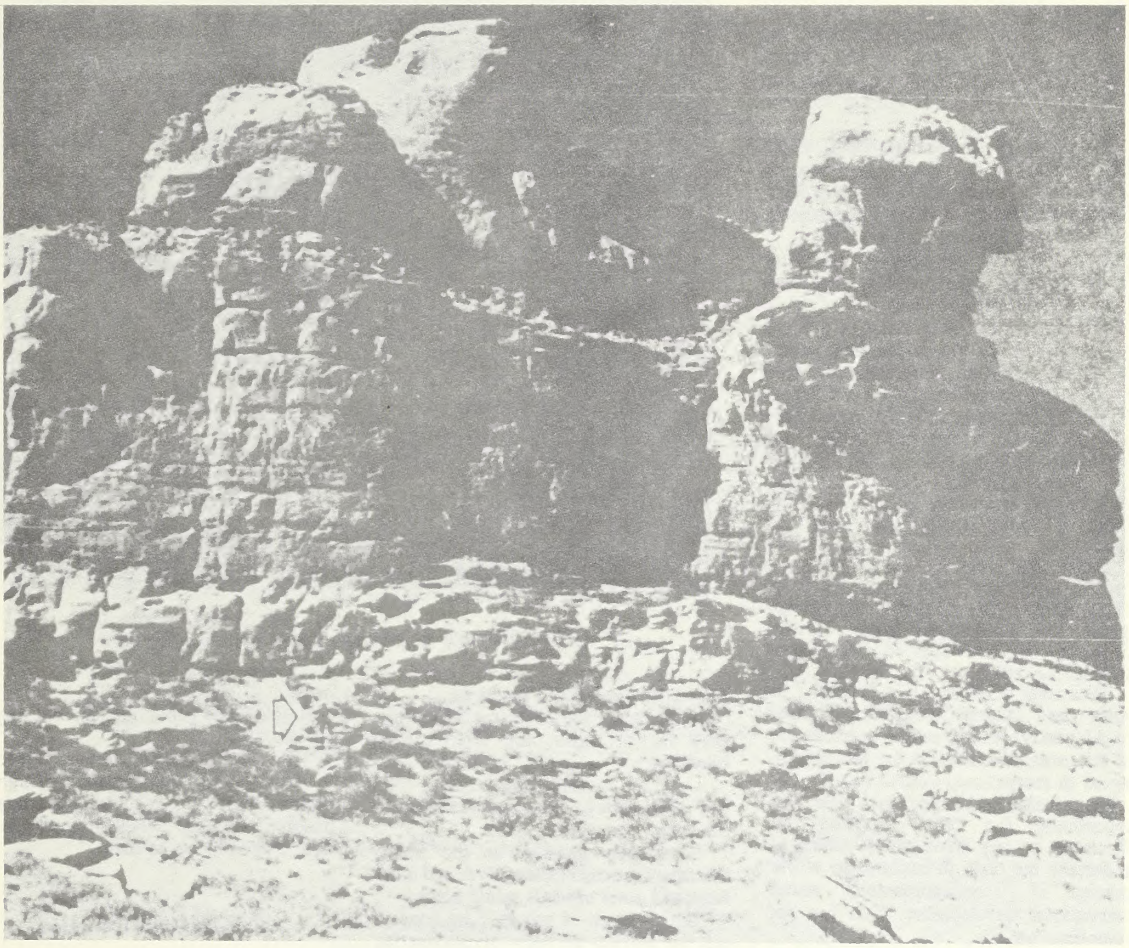
"Although this festoon cross-stratification exists elsewhere," he said, "this is a unique area in which to study it.



Hand spans a billion years geologic history



Cross stratification makes



Chimney Rock area endangered (note man, arrow, at base)

It is well-exposed, unlike the other examples, and it is very close to the University, so that students who want to study it can."

The "festoon" description was first applied to the feature by Dr. Samuel Knight, Professor Emeritus of Geology at UW. He "d his doctoral work in the area over 50 years ago.

"Since then," Steidtmann said, "there has been a great deal of argument over the origin of this feature. In the Chimney Rock area, we can study it in three dimensions. We can walk around it or on top of it.

"It is a great combination of an interesting and well-exposed feature, and students who want to study it."

Steidtmann also said students are not the only ones who want to see the festoons.

"When geologists come here," he said, "whether they are academics or working in the field, the first thing they want to see is this area. We've had around 200 geologists come here to see the feature."

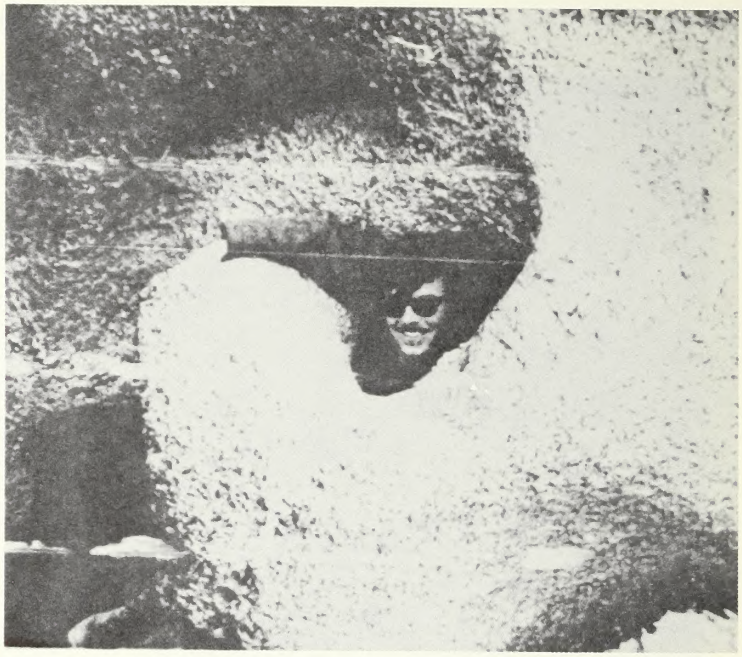
Steidtmann felt the area's "close access to Laramie, and its really quite beautiful National Parks, would make it a nice park."

Bujak also wants a park, saying it would help the "tourist impact on Yellowstone. The majority of tourists going to Yellowstone pass through Wyoming on Interstate 80, going by or through Laramie.

"The state of Wyoming in general," he said, "and Albany County in particular could greatly benefit from the development of this area in answer to the national interest in recreational alternatives."

Bujak feels the Chimney Rock area is an opportunity for "the University of Wyoming, or any other group willing to undertake the task, to explore the whole concept of environmentally sound recreational development. This has not been done yet."

Alan Jubenville, recreation instructor at UW, said he wants to open the area to his class in "Special Investigations in Recreation" next semester. He said he hopes his eight to ten graduate students in the class would want to explore the recreation potential of the area.



Paul Bujack in plunge hole erosion feature

Bujak listed the problems blocking a park for the area, and offered some solutions.

"The main problem is the land, money and the bi-state location and ownership of the land," he said.

"Community pressure on the county officials, the owners themselves and other local and state officials would help.

"The problem of money," he hopes," can be solved, perhaps by generating awareness of the area among local business interests." Bujak also mentioned the possibility of assistance from the Sierra Club.

The bi-state location and ownership calls for outside hope, Bujak said, mentioning the Colorado groups which he hopes will be able to help.

"I hope to get the Colorado groups interested in this. They are more active than Wyoming groups, because we are operating from a lower tax base, and state funds might be scarce for the purpose of a park."

Bujak hopes public opinion will help in the situation.

"This is a classic example of people hearing about a situation soon enough to enable them to head off a drastic mistake," he said. "Whether or not this is done is entirely up to them."

Student fund

LARAMIE—Completed applications for scholarships, loans, grants, work-study and most financial aid programs at the University of Wyoming must be submitted no later than Jan. 15, 1972 to the Division of Student Financial Aids.

Priority consideration will be given the applications for 1972 summer session as well as the 1972-73 Fall and Spring semesters if this deadline is met. Application forms are available in Room 415 Old Main.

r text

IN REPLY REFER TO:
C.R.S.P.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COLORADO STATE OFFICE
ROOM 700, COLORADO STATE BANK BUILDING
1600 BROADWAY
DENVER, COLORADO 80202

5-930
1791.1

Your Reference 7-200

Memorandum

To: Bureau of Reclamation, Region 7
Building 20, Denver Federal Center

From: State Director, Colorado

Subject: Proposed Hayden-Ault 345KV transmission line.

The attached maps show public land status in North Park across which the line might pass. A copy of the public land orders (No.s 3530 and 3701) withdrawing lands in the North Sand Hills are attached.

There are some Indian teepee rings within the Park but we do not have an inventory of their location. There are probably a few sagegrouse booming areas on public lands within the corridors proposed. We assume Colorado Division of Game, Fish and Parks will provide specific information about these.

Attachments

NOTICE
If you detach enclosures, please insert your code number

Note: Maps already delivered to Mr. Hunt

§ 1.25–50 Suspension and revocation proceeding record.

(a) The fees for the transcript of the record of a suspension, or revocation proceeding, including exhibits, charts, etc., conducted under 46 CFR, Part 137, shall be $1 for each page of typewritten copy, legal or smaller size (which may be an original or carbon copy), and $0.50 for each additional copy furnished at the same time to the same person (the minimum fee for typewritten copies shall be $2); $0.80 for each sheet by any reproduction process 18" x 24" or smaller that may be used (the minimum fee for 18" x 24" or smaller shall be $2); and $2.50 for each sheet by any reproduction process larger than 18" x 24" which may be used.

(R.S. 4450, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, secs. 1, 2, 68 Stat. 484, secs. 3, 68 Stat. 675, secs. 3, 70 Stat. 152; 46 U.S.C. 239, 367, 239a, 239b, 390b, 50 U.S.C. 198)

6. Section 1.25–55 is amended to read as follows:

§ 1.25–55 Excerpts from certain merchant marine records.

(a) The fees for certain types of excerpts from merchant marine records are as follows:

(1) For each copy of an entry or excerpt from merchant vessel log book, the fee shall be $1.25 for each entry or excerpt with a minimum fee of $3.75.

(2) For each transcript of service of a merchant seaman prepared in letter form for someone other than the merchant seaman whose service is described therein, the fee shall be $0.35 for each entry with a minimum fee of $3.50.

(3) For a transcript of services of a merchant seaman which is furnished to the seaman on Form CG–723, the fee is $1 for the first entry and $0.10 for each additional entry requested at the same time.

7. Section 1.25–60 is revised to read as follows:

§ 1.25–60 Shipping articles.

(a) The fee for reproduction by any method of a shipping article shall be $1.25 for each sheet, any size. The minimum fee charged shall be $3.75.

(b) The fees for copies of excerpts from a shipping article by any method shall be $0.35 for each excerpt, with a minimum fee of $3.50 for each request.

8. Section 1.25–65 is revised to read as follows:

§ 1.25–65 Duplicate merchant marine documents or certificates.

(a) The fees to obtain certain duplicate merchant marine documents or certificates are as follows:

(1) Certificate of registry as staff officer (Form CG–887). The fee for a duplicate certificate of registry as staff officer is $2.00. (See 46 CFR 10.25–7(1)).

(2) Continuous discharge book (Form CG–719A). The fee for a duplicate continuous discharge book is $2.50. (See 46 CFR 12.02–23).

(3) Merchant Mariner's document (Form CG–2838). The fee for a duplicate Merchant Mariner's document is $2. (See 46 CFR 12.02–23).

(R.S. 4551, as amended, sec. 7, 49 Stat. 1936, as amended, sec. 7, 53 Stat. 1147, as amended; 46 U.S.C. 643, 689, 247)

(4) Certificate of seaman's service (Form CG–723). The fee for furnishing a merchant seaman with a chronological record of service on Form CG–723, in lieu of issuing individual certificates of discharge on Form CG–718A or in lieu of making duplicate service entries in a seaman's continuous discharge book, as authorized by 46 CFR 154.07, is $1 for the first entry and $0.10 for each additional entry requested at the same time. (See 46 CFR 12.02–23(b)).

(Sec. 3, 60 Stat. 238, sec. 501, 65 Stat. 290, and sec. 633, 63 Stat. 545; 5 U.S.C. 1002, 140, 14 U.S.C. 633)

In Subchapter C, Part 74, Subpart 74.20:

1. Section 74.20–1 is amended by revising Table A to read as follows:

§ 74.20–1 Table of charges.

* * * * *

TABLE A—STANDARD CHARGES

	Preparation of aid [1]	Service charge per month or major fraction thereof	Vessel time per hour
a. Lighted buoy (8′ or 9′)	$220	$90	$144
b. Bell or gong buoy	200	30	144
c. Lighted buoy (6′ or 7′)	190	75	67
d. Lighted buoy (5′ or less)	160	70	67
e. Can or nun buoy (1st or 2d class)	35	20	67
f. Can or nun buoy (3d or 4th class)	20	15	67
g. Can or nun buoy (5th, 6th, or F class)	15	10	34
h. Lighting apparatus (only)	50	7	34
i. Rebuilding minor structure on submarine sites such as piling, pile clusters, etc			40

[1] Includes preparation, adaptation, and placing of a replacement aid (exclusive of vessel time), and preparation, adaptation, placing, retrieving, and overhaul following retrieving of a temporary aid (exclusive of vessel time).

(Sec. 92, 63 Stat. 503; 14 U.S.C. 92. Interpret or apply secs. 86, 633, 642, 63 Stat. 501, 545, 547; 14 U.S.C. 86, 633, 642)

Dated: January 19, 1965.

[SEAL] E. J. ROLAND,
Admiral, U.S. Coast Guard,
Commandant.

[F.R. Doc. 65–1172; Filed, Feb. 3, 1965; 8:45 a.m.]

Chapter II—Corps of Engineers, Department of the Army

PART 204—DANGER ZONE REGULATIONS

Gulf of Mexico, Texas

Pursuant to the provisions of Section 7 of the River and Harbor Act of August 8, 1917 (40 Stat. 266; 33 U.S.C. 1) and Chapter XIX of the Army Appropriations Act of July 9, 1918 (40 Stat. 892; 33 U.S.C. 3), § 204.162 establishing and governing the use and navigation of a danger zone in the Gulf of Mexico, Texas, is hereby amended to provide for continuous use, both day and night, effective February 4, 1965 since the use of the area is required for essential crew training and the effective date will coincide with that established for the associated airspace restricted area as published in the FEDERAL REGISTER (29 F.R. 18354), as follows:

§ 204.162 Gulf of Mexico off Matagorda Island, Tex.: Air Force practice gunnery, bombing, and rocket firing range.

(a) * * *

(2) *Use of area.* The area will be in continuous use, both day and night, for air-to-ground gunnery, dive bombing, rocket firing, horizontal bombing and firing at radio controlled targets.

(b) *The regulations.* (1) Except in an emergency involving danger to life or property, no vessel shall enter or remain in the danger zone unless authorized to do so in writing by the enforcing agency.

* * * * *

[Regs., February 1, 1965, 1507–32 (Gulf of Mexico, Texas)—ENGCW–ON] (Sec. 7, 40 Stat. 266; 33 U.S.C. 1)

J. C. LAMBERT,
Major General, U.S. Army,
The Adjutant General.

[F.R. Doc. 65–1258; Filed, Feb. 3, 1965; 8:50 a.m.]

Title 39—POSTAL SERVICE

Chapter I—Post Office Department

PART 22—SECOND CLASS

Correction

Federal Register Document 65–529, published at page 575 in the issue dated Saturday, January 16, 1965, is corrected as follows: In the fourth line of § 22.1 (b)(1)(ii)(b), a closing parenthesis should be added following "5 percent".

Title 43—PUBLIC LANDS: INTERIOR

Chapter II—Bureau of Land Management, Department of the Interior

APPENDIX—PUBLIC LAND ORDERS

[Public Land Order 3530]

[88702]

CERTAIN STATES

Withdrawal for Protection of Natural Areas on the Public Lands

By virtue of the authority vested in the President and pursuant to Executive

Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Subject to valid existing rights, the following described public lands, which are under the jurisdiction of the Secretary of the Interior, are hereby withdrawn from all forms of appropriation under the public land laws, including the mining laws (Ch. 2, Title 30 U.S.C.), but not from leasing under the mineral leasing laws, for the protection of unique botanical, geological, or zoological characteristics and of irreplaceable scientific and recreation values:

ARIZONA

GILA AND SALT RIVER MERIDIAN

Turbinella and Gambel Oak Area

T. 39 N., R. 14 W.,
Sec. 12, SE¼ and E½SW¼.
Containing 240 acres.

CALIFORNIA

MOUNT DIABLO MERIDIAN

Baker Cypress and Lava Rock Area

T. 39 N., R. 4 E.,
Sec. 13, unsurveyed.
T. 39 N., R. 5 E.,
Sec. 17, lot 4 and S½S½;
Sec. 18, S½SE¼ and NE¼SE¼;
Sec. 19, NE¼;
Sec. 20, lots 1 to 4, inclusive, and S½N½.
Containing 1,448.43 acres.

Piute Cypress Area

T. 27 S., R. 33 E.,
Sec. 19, S½.
T. 27 S., R. 35 E.,
Sec. 24, SE¼ and E½SW¼;
Sec. 25, NE¼ and NE¼NW¼.
Containing 760 acres.

Bitterbrush Area

T. 35 N., R. 17 E.,
Sec. 22, SE¼;
Sec. 23, SW¼;
Sec. 26, NW¼;
Sec. 27, NE¼.
Containing 640 acres.

COLORADO

NEW MEXICO PRINCIPAL MERIDIAN

Rare Lizard and Snake Area

T. 36 N., R. 20 W.,
Sec. 22, S½;
Sec. 27, NW¼.
Containing 480 acres.

SIXTH PRINCIPAL MERIDIAN

High Mesa Grassland Area

T. 18 S., R. 72 W.,
Sec. 5, S½ and S½N½;
Sec. 6, N½SE¼;
Sec. 8, W½NE¼ and SE¼NW¼.
Containing 435 acres.

Sand Dune Area

T. 10 N., R. 78 W.,
Sec. 6, lots, 1, 2, 3, 4, 5, 6, 7, S½NE¼, SE¼NW¼, E½SW¼, and N½SE¼.
Containing 671.25 acres.

IDAHO

BOISE MERIDIAN

Grassland Kipuka Area

T. 1 N., R. 24 E.,
Sec. 29, NW¼.
Containing 160 acres.

China Cup Butte Area

T. 2 S., R. 29 E.,
Sec. 4, E½SW¼ and W½SE¼.
Containing 160 acres.

NEVADA

MOUNT DIABLO MERIDIAN

Bristlecone Pine Area

T. 19 N., R. 62 E.,
Sec. 26, E½;
Sec. 35, NE¼.
Containing 480 acres.

Pinon-Joshua Tree Transition Area

T. 3 S., R. 38 E.,
Sec. 32.
Containing 640 acres.

Mountain Meadow Area

T. 12 N., R. 51 E.,
Sec. 21, E½NE¼SW¼.
Containing 22 acres.

Pygmy Sage Area

T. 14 N., R. 67 E.,
Sec. 33, SW¼.
Containing 160 acres.

Pine Creek Canyon Area

T. 21 S., R. 58 E.,
Sec. 17, N½SW¼NW¼, NW¼SE¼NW¼, NW¼NW¼, and N½NE¼.
Containing 240 acres.

OREGON

WILLAMETTE MERIDIAN

Brewer Spruce Area

T. 39 S., R. 6 W.,
Sec. 5, N½NW¼SW¼ and SW¼NW¼SW¼;
Sec. 6, NE¼SE¼, SW¼SE¼, S½NW¼SE¼, SE¼NE¼SW¼, SE¼SW¼, and S½ lot 7.
Containing 210.36 acres.

Douglas Fir Area

T. 27 S., R. 10 W.,
Sec. 17, W½W½SW¼;
Sec. 18, S½N½, SE¼, lots 7 and 12, N½ of 8;
Sec. 19, N½NE¼, NW¼ lot 1, E½ lot 1;
Sec. 20, W½NW¼NW¼.
Containing 815 acres.

2. The withdrawal made by this order does not alter the applicability of those public land laws governing the use of the lands under lease, license or permit, or governing the disposal of their mineral and vegetative resources other than under the mining laws.

STEWART L. UDALL,
Secretary of the Interior.

JANUARY 29, 1965.

[F.R. Doc. 65-1199; Filed, Feb. 3, 1965; 8:46 a.m.]

[Public Land Order 3531]

[Sacramento 078564]

CALIFORNIA

Withdrawal for National Forest Recreation Area

By virtue of the authority vested in the President, and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Subject to valid existing rights, the following described national forest lands are hereby withdrawn from appropriation under the United States mining laws (Chap. 2, 30 U.S.C.), but not from leasing under the mineral leasing laws, in aid of programs of the Department of Agriculture:

MOUNT DIABLO MERIDIAN

KLAMATH NATIONAL FOREST

Indian-Scotty Recreation Area

T. 44 N., R. 11 W.,
Sec. 26, SW¼SE¼NW¼, NW¼NE¼SW¼, S½NE¼SW¼, E½NW¼SW¼, S½NW¼SE¼, NE¼SE¼ and NE¼NW¼SE¼.

The areas described aggregate 130 acres in Siskiyou County.

2. The withdrawal made by this order does not alter the applicability of those public land laws governing the use of the national forest lands under lease, license, or permit, or governing the disposal of their mineral and vegetative resources other than under the mining laws.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JANUARY 29, 1965.

[F.R. Doc. 65-1200; Filed, Feb. 3, 1965; 8:46 a.m.]

[Public Land Order 3533]

[Idaho 014430]

IDAHO

Amending Public Land Order No. 3510 of December 7, 1964

The description of the lands in sec. 26, withdrawn by Public Land Order No. 3510 of December 7, 1964 (29 F.R. 16987) Sunny Gulch Campground, is amended to read as follows:

BOISE MERIDIAN

T. 10 N., R. 13 E.,
Sec. 26, lot 3, lot 4, except the south 20 acres thereof, and lot 5, except the south 20 acres thereof.

The areas described aggregate 123.59 acres.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JANUARY 29, 1965.

[F.R. Doc. 65-1201; Filed, Feb. 3, 1965; 8:47 a.m.]

[Public Land Order 3534]

ALASKA

Withdrawals for Native School Purposes

By virtue of the authority vested in the Secretary of the Interior by the act of May 31, 1938 (52 Stat. 593; 48 U.S.C. 353a), it is ordered as follows:

1. Subject to valid existing rights, the following described public lands, which are under the jurisdiction of the Secretary of the Interior, are hereby withdrawn from all forms of appropriation under the public land laws, including the mining laws (Chap. 2, 30 U.S.C.), but not from leasing under the mineral leasing laws, and reserved for school purposes:

FAIRBANKS 031045

PILOT STATION

U.S. Survey 4011,
Lot 1.

Containing 2.38 acres.

Most of the lands are in the Willamette National Forest.

2. In DA-493-Oregon, the Federal Power Commission vacated the withdrawals created pursuant to the filing of applications for preliminary permits, and licenses, for Projects Nos. 852, 1068, and 2059, for the following described lands:

WILLAMETTE MERIDIAN

T. 17 S., R. 3 E.,
Sec. 5, lot 5.
T. 14 S., R. 6 E.,
Sec. 36, SE¼NE¼, NE¼SE¼, and S½SE¼.
T. 15 S., R. 6 E.,
Sec. 1, NE¼;
Sec. 12, S½NE¼.
T. 16 S., R. 6 E.,
Sec. 3, lots 1, 2, 7, 10, 11, 14, and 15;
Sec. 10, lot 5 and N½NW¼.
T. 13 S., R. 7 E.,
Sec. 31, lot 1, N½NE¼, and NE¼NW¼;
Sec. 32, NW¼NW¼, S½NW¼, E½SW¼, and SW¼SE¼.
T. 14 S., R. 7 E.,
Sec. 5, lots 2, 5, 6, 7, 8, SW¼NE¼, and SE¼SE¼;
Sec. 8, lots 1 to 8, inclusive;
Sec. 9, lot 1, SW¼NW¼, and NW¼SW¼;
Sec. 17, NE¼, SE¼SW¼, N½SE¼, and SW¼SE¼;
Sec. 20, S½SW¼, and SW¼SE¼;
Sec. 29, NW¼ and W½SW¼;
Sec. 30, E½;
Sec. 31, lots 2, 3, 4, NE¼, E½NW¼, NE¼SW¼, and N½SE¼;
Sec. 32 NW¼NW¼.
T. 15 S., R. 7 E.,
Sec. 6, lot 1.

The areas described aggregate approximately 3,292 acres. About 1,500 acres form a part of the lands described in paragraph 1, of the order.

3. In DA-493-Oregon, the Federal Power Commission determined that the value of the following described lands will not be injured or destroyed for purposes of power development by location, entry, or selection under the appropriate public land laws, subject to the provisions of section 24 of the Federal Power Act:

WILLAMETTE MERIDIAN

T. 17 S., R. 1 E.,
Sec. 16, lots 1 to 7 incl., NE¼NE¼ and SW¼NE¼.
T. 16 S., R. 2 E.,
Sec. 28, lot 9;
Sec. 33, lot 2;
Sec. 35, lot 6.
T. 17 S., R. 2 E.,
Sec. 1, lot 4;
Sec. 2, lot 4.
T. 16 S., R. 3 E.,
Sec. 31, lots 7, 8, 9, and 10.
T. 17 S., R. 3 E.,
Sec. 3, lot 2 except the north 20 acres;
Sec. 4, lots 5, 6, 7, and NW¼NW¼;
Sec. 5, lots 1, 4, and NE¼SE¼;
Sec. 9, lots 3, 4, 5, S½NE¼, SE¼NW¼ and NE¼SW¼.

The areas described aggregate approximately 1,041 acres.

4. Until 10 a.m. on December 9, 1965, the State of Oregon shall have the preferred right of application to select the public lands for school indemnity purposes, as provided by R.S. 2276, as amended (43 U.S.C. 852).

5. At 10 a.m. on December 9, 1965, the public lands shall be open to the operation of the public land laws generally, subject to valid existing rights, the provisions of existing withdrawals, and the requirements of applicable law. All valid applications received at or prior to 10 a.m. on December 9, 1965, shall be considered as simultaneously filed at that time. Those received thereafter shall be considered in the order of filing.

6. The national forest lands and revested Oregon and California Railroad grant lands shall be open at 10 a.m. on July 16, 1965, to such forms of disposition as may by law be made of such lands.

7. Any disposals of the lands described in paragraph 3 of this order shall be subject to the provisions of section 24 of the Federal Power Act, supra, as specified by the Federal Power Commission in its determination.

8. The lands have been open to applications and offers under the mineral leasing laws, and to location under the United States mining laws.

Inquiries concerning the lands should be addressed to the Manager, Land Office, Bureau of Land Management, Portland, Oregon.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JUNE 10, 1965.

[F.R. Doc. 65-6339; Filed, June 17, 1965; 8:45 a.m.]

[Public Land Order 3700]

[Anchorage 023000]

ALASKA

Withdrawing Lands for Use of Department of the Air Force as Recreation Sites; Revoking Public Land Order No. 1350 of October 23, 1956

By virtue of the authority vested in the President and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Subject to valid existing rights, the following described public lands are hereby withdrawn from all forms of appropriation under the public lands laws, including the mining laws (ch. 2, Title 30 U.S.C.), but not from leasing under the mineral leasing laws and reserved for use of the U.S. Air Force as recreational sites:

SEWARD MERIDIAN

Naknek Recreation Camp Site No. 1

T. 18 S., R. 44 W. (Unsurveyed),
Sec. 4, S½NE¼SW¼SW¼, N½SE¼SW¼SW¼, and SW¼SE¼SW¼SW¼.

Naknek Recreation Camp Site No. 2

T. 17 S., R. 44 W.,
Sec. 25, N½SE¼NE¼SE¼ and N½S½SE¼NE¼SE¼.
T. 17 S., R. 43 W. (Unsurveyed),
Sec. 30, SW¼NW¼NW¼SW¼ and NW¼SW¼NW¼SW¼.

The areas described aggregate 20.26 acres.

2. Public Land Order No. 1350 of October 23, 1956, which withdrew the following described lands for use of the Department of the Air Force as recreational sites, is hereby revoked:

Naknek Recreational Camp Site No. 1

Beginning at a point where N latitude 58°-38' line intersects the mean high water mark on the NW shore of the Naknek River, in the vicinity of Naknek Air Force Base, Alaska, thence:

Southerly 410 feet along high water mark;
W. 520 feet;
N. 750 feet;
E. 625 feet;
S. 375 feet to the point of beginning.

The tract described contains approximately 10 acres.

Naknek Recreational Camp Site No. 2

Beginning at a point where W longitude 156°28' line intersects the mean high water mark on the N shore of the Naknek River near the confluence of Naknek Lake, thence:

N. 625 feet;
E. 750 feet;
S. 490 feet to the said high water mark on the N shore of the Naknek River; thence

meandering southwesterly along the mean high water mark of Naknek River 770 feet to the point of beginning.

The tract described contains approximately 10 acres.

3. Until 10 a.m. on September 9, 1965, the State of Alaska shall have a preferred right to select the lands described in paragraph 2 hereof as provided by the act of July 28, 1956 (70 Stat. 709; 48 U.S.C. 46-3b), and section 6(g) of the Alaska Statehood Act of July 7, 1958 (72 Stat. 339), and the regulations in 43 CFR 2222.9.

4. This order shall not otherwise become effective to change the status of the lands described in paragraph 2 hereof until after 10 a.m. on September 9, 1965, at which time the lands shall be open to the operation of the public land laws generally, including the mining laws, subject to valid existing rights, the provisions of existing withdrawals, and the requirements of applicable law. All valid applications, received at or prior to 10 a.m. on September 9, 1965, shall be considered as simultaneously filed at that time. Those received thereafter shall be considered in the order of filing.

Inquiries concerning the lands should be addressed to the Manager, Land Office, Bureau of Land Management, Anchorage, Alaska.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JUNE 10, 1965.

[F.R. Doc. 65-6340; Filed, June 17, 1965; 8:45 a.m.]

[Public Land Order 3701]

[Misc-88702]

COLORADO, CALIFORNIA, AND ARIZONA

Withdrawal for Protection of Natural Areas on the Public Lands; Correction and Partial Revocation of Public Land Order No. 3530 of January 29, 1965

By virtue of the authority vested in the President and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Subject to valid existing rights, the following described public lands which are under the jurisdiction of the Secretary of the Interior, are hereby with-

drawn from all forms of appropriation under the public land laws, including the mining laws (Chap. 2, Title 30, U.S.C.), for the protection of unique scientific and recreation values:

COLORADO

SIXTH PRINCIPAL MERIDIAN

Sand Dune Area

T. 10 N., R. 79 W.,
Sec. 1, lot 1, SE¼NE¼, and NE¼SE¼.

Containing 120.07 acres in Jackson County.

CALIFORNIA

MOUNT DIABLO MERIDIAN

Piute Cypress Areas

T. 27 S., R. 32 E.,
Sec. 24, SE¼ and E½SW¼;
Sec. 25, NE¼ and NE¼NW¼.

Containing 440 acres in Kern County.

ARIZONA

GILA AND SALT RIVER MERIDIAN

Turbinella and Gambel Oak Area

T. 39 N., R. 13 W.,
Sec. 18, lots 3 and 4, and E½SW¼.

Containing 153.98 acres Mohave County.

2. The description of lands withdrawn for the rare lizard and snake area, by Public Land Order No. 3530, is amended to read:

COLORADO

NEW MEXICO PRINCIPAL MERIDIAN

Rare Lizard and Snake Area

T. 36 N., R. 20 W.,
Sec. 22, lots 3, 4, 7, 8, and SE¼;
Sec. 27, lots 1, 2, 5, and 6.

Containing 443.39 acres in Montezuma County.

3. Public Land Order No. 3530 of January 29, 1965, is hereby revoked so far as it affects the following described lands:

ARIZONA

GILA AND SALT RIVER MERIDIAN

Turbinella and Gambel Oak Area

T. 39 N., R. 14 W.,
Sec. 12, SE¼ and E½SW¼.

Containing 240 acres in Mohave County.

CALIFORNIA

MOUNT DIABLO MERIDIAN

Piute Cypress Area

T. 27 S., R. 35 E.,
Sec. 24, SE¼ and E½SW¼;
Sec. 25, NE¼ and NE¼NW¼.

Containing 440 acres in Kern County.

4. At 10 a.m., on December 9, 1965, the lands released from withdrawal by paragraphs 2 and 3 of this order, shall be open to disposition under the public land laws generally, subject to valid existing rights the provisions of existing withdrawals, and the 6-month preference right filing period afforded certain States by R.S. 2276 as amended.

5. The withdrawal made by paragraph 1 of this order does not alter the applicability of the public land laws governing the use of the lands under leases, license or permit, or governing the disposal of their mineral and vegetative resources other than under the mining laws.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JUNE 10, 1965.

[F.R. Doc. 65-6341; Filed, June 17, 1965; 8:46 a.m.]

[Public Land Order 3702]

[Sacramento 078663]

CALIFORNIA

Withdrawal of Land for Public Recreation Site

By virtue of the authority vested in the President and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Subject to valid existing rights and to the limitations imposed by paragraph 3 of this order, the following described public lands, which are under the jurisdiction of the Secretary of the Interior, are hereby withdrawn from all forms of appropriation under the public land laws, including the mining laws (Chap. 2, Title 30, U.S.C.), and reserved for a public recreation site:

MOUNT DIABLO MERIDIAN

T. 33 N., R. 11 W.,
Sec. 1, lot 12, NW¼NE¼SW¼, and NE¼NW¼SW¼.

The areas described contain approximately 60 acres.

2. The withdrawal made by this order does not alter the applicability of the public land laws governing the use of the lands under lease, license, or permit, or governing the disposal of their mineral and vegetative resources, other than under the mining laws.

3. Nothing in this order shall prevent the filing of an application by the State of California for the disposition of the lands withdrawn by this order under the Recreation and Public Purposes Act, as amended (43 U.S.C., secs. 869–869.4).

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JUNE 10, 1965.

[F.R. Doc. 65-6342; Filed, June 17, 1965; 8:46 a.m.]

[Public Land Order 3703]

[Idaho 06855]

IDAHO

Partial Revocation of Public Land Order No. 1898 of July 13, 1959

By virtue of the authority vested in the President and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Public Land Order No. 1898 of July 13, 1959, so far as it reserved the following described public lands under the jurisdiction of the Secretary of the Interior as a safety measure for the protection of the public, is hereby revoked:

BOISE MERIDIAN

T. 6 S., R. 2 E.,
Sec. 34.

T. 7 S., R. 4 E.,
Sec. 3, S½.

The areas described aggregate 960 acres in Owyhee County.

The land has a long, gentle eastward slope with a few small knolls. Soils are predominantly a deep silt loam, slightly gravelly in places. Principal vegetation is shadscale.

2. The area has been used by the Department of the Air Force as a bombing range. That Department has had the lands thoroughly searched. The lands have been cleared of all explosive ordnance and residue reasonably possible to detect. However, all buried ordnance may not have been detected. To that extent, use of the land involves danger.

3. Until 10 a.m., on December 9, 1965, the State of Idaho shall have a preferred right of application to select the lands as provided by R.S. 2276, as amended (43 U.S.C. 852). After that date and hour the lands shall become subject to application, petition, location and selection generally, including applications and offers under the mineral leasing laws, subject to valid existing rights, the provisions of existing withdrawals, and the requirements of applicable law. All valid applications received at or prior to 10 a.m., on July 16, 1965, shall be considered as simultaneously filed at that time. Those filed thereafter shall be considered in the order of filing.

4. The lands will be open to location under the United States mining laws after 10 a.m., on December 9, 1965.

Inquiries concerning the lands should be addressed to the Manager, Land Office, Bureau of Land Management, Boise, Idaho.

JOHN A. CARVER, Jr.,
Under Secretary of the Interior.

JUNE 10, 1965.

[F.R. Doc. 65-6343; Filed, June 17, 1965; 8:46 a.m.]

[Public Land Order 3704]

[Anchorage 028640]

ALASKA

Revocation of Public Land Order No. 1752 of November 12, 1958

By virtue of the authority vested in the President and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Public Land Order No. 1752 of November 12, 1958, which withdrew the following described land for use of the Department of the Air Force for military purposes, is hereby revoked:

SEWARD MERIDIAN

T. 5 S., R. 13 W.,
Sec. 29, SW¼NE¼, S½NW¼, SW¼, and NW¼SE¼.

The areas described aggregate 320 acres of public and nonpublic lands. The lands are located about 5 miles N. of Homer, Alaska. The soil is shallow, supporting a vegetative cover of native grasses and scattered stands of spruce and aspen. Seventy acres of the lands,

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Division of River Basin Studies
Room 151, Building 40
Denver Federal Center
Denver, Colorado 80225

C.R.S.P.
DEC 10 1971

To	Surname	Date
20		12-10
		12-16
600	A. Watts	12-16
150		

December 9, 1971

Memorandum

To: Regional Director, Bureau of Reclamation,
Region 7, Denver, Colorado

From: Field Supervisor

Subject: Hayden-Ault Transmission Line, Colorado -
Selection of a Corridor

Thank you for your letter, referenced 7-200, of December 3, 1971, inviting our Bureau's comments pertinent to your choosing of one of the four corridors for this 345-kv line, discussed at the November 11, 1971 joint meeting.

As we presently understand, neither of the alternate routes would cross the Arapaho National Wildlife Refuge. Should the corridor which is finally selected be planned to cross portions of the refuge, our Division of Wildlife Refuges would definitely have an input relative to the alinements, selection of power pole design, and other aspects bearing on the objectives of the Wildlife Refuge.

From the standpoint of protection of the environment, Corridor No. 3 appears to be far more amenable. We are aware that other factors, including the projected future need for an additional line, possibly along a route similar to 1, 2, or 4, must also be considered in the final selection.

When a corridor is finally selected, our Bureau will wish to assist you in detailed plans, in order to reduce losses and to incorporate measures to enhance fish and wildlife habitat. Other features such as the retention or closure of construction roads will need to be considered relative to potentials for hunting, fishing, and wildlife-oriented recreation, and the preservation of quality areas.

December 9, 1971

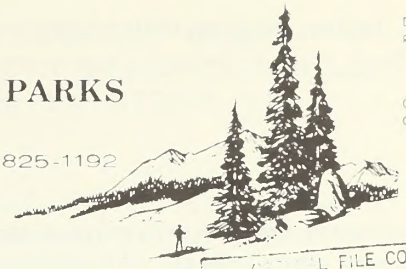
We appreciate the opportunity of participating in this early selection of a corridor and look forward to helping formulate detailed design for the transmission line as appertains to fish and wildlife.

Arthur S. Hale

Arthur S. Hale

cc:
Regional Forester, Rocky Mountain Region, Denver, Colorado

STATE OF COLORADO John A. Love, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GAME, FISH AND PARKS
Harry R. Woodward, Director
6060 Broadway Denver, Colorado 80216 · 825-1192



DEPARTMENT OF NATURAL RESOURCES
T. W. Ten Eyck, Executive Director
GAME, FISH AND PARKS COMMISSION
Dean Suttle, Chairman
William W. Robinson, Vice
Ford Sprong, Secretary
Walter W. Cogswell, Jr., M
Harry Combs, Member
R. Willard Cool, Member
Charles A. Gebauer, Member
Forest Gregg, Member
LeRoy Reason, Member

C.R.S.P.
OFFICIAL FILE COPY
Dept. of Recl.
Region 7
MAR 27 1972
Date
3-27
3/27
3-28

March 17, 1972

Mr. James M. Ingles, Regional Director
U.S. Bureau of Reclamation
Bldg. 20, Denver Federal Center
Denver, Colorado 80255

Dear Mr. Ingles:

We have finally had an opportunity to review the preliminary draft of the Hayden-Ault 345-Kilovolt Transmission Line, Colorado River Storage Project, Corridor Location Study, prepared by your agency in cooperation with Region 2 of the U.S. Forest Service, and dated February 22, 1972. We are sorry that we couldn't be represented at your meeting on March 8, 1972, when this report was discussed. Hopefully, our written comments on this study report will be of some value.

In our judgment, this report represents an in-depth study of the physical and biological factors of the various potential corridors and the environmental impacts that might result from construction of a power transmission line within these corridors. You and the U.S. Forest Service deserve much credit for conducting and reporting this comprehensive study. Your combined efforts have resulted in a much better study than either agency could have accomplished independently. Your solicitation of input from other state and federal agencies and the incorporation of their comments in this study report is particularly appreciated.

We have studied the comments on this study by the Division of River Basins, U.S. Bureau of Sport Fisheries and Wildlife, submitted to you on March 7, 1972, by the Field Supervisor Arthur S. Hale. Our Division concurs with the comments contained in this letter.

Transmitted herewith are our general and specific comments on the aforementioned study report. We appreciate your giving us the opportunity to review and comment on this study.

Sincerely,

Harry R. Woodward, Director

Laurence E. Riordan
Assistant Director
Services

NOTICE
If you detach enclosures, please insert your code number_____

RLH:sb
cc: USFS, Lucas w/encl.
BSFW, Hale w/encl.
R. Elliott w/encl.
P. Barrows w/encl.
E. Cook w/encl.
G. Rogers w/encl.

COMMENTS ON PRELIMINARY DRAFT
HAYDEN-AULT 345-KILOVOLT TRANSMISSION LINE
CORRIDOR SELECTION STUDY 1/

Generally speaking, we are well pleased with corridor selection recommended in this study report. The combination of corridors recommended will probably produce the least environmental impact on the resources for which we are responsible of those corridors under consideration. We were especially gratified with the compromise corridor between corridors No. 1 and 3, identified as No. 3S in Exhibit No. 2. This will avoid those serious conflicts we called to your attention earlier in the Shipman Park and Cherokee Park areas.

The only portion of the selected corridors that we find objectionable is the location north of Soda Creek, as is mentioned on Page 117. As you will recall, in our comments sent to you under date of November 24, 1972, we suggested the corridor "enter the Routt National Forest between Soda Creek and the Buffalo Pass Road, hence eastward on the south side of Soda Creek to its confluence with South Fork of Soda Creek, hence eastward on the south side of the South Fork of Soda Creek to Buffalo Pass, staying out of sight of the Buffalo Pass Road insofar as possible and crossing the Buffalo Pass Road west of Buffalo Pass." Such a location would avoid invading the undeveloped area and elk calving grounds north of Soda Creek, would permit use of a road along Soda Creek east of the Dry Lake Campground for construction purposes; and would minimize adverse visual impacts in the travel influence zone of the Buffalo Pass Road.

At the time we made the above recommendation, it was our understanding that only one transmission line was to be located within the new corridor. Now that two lines within the corridor is a possibility, we can foresee some problems with stream encroachment below the confluence of Soda Creek with the South Fork of Soda Creek and adverse impacts in the vicinity of Dry Lake Campground. Therefore, we hereby amend our previous recommendation as follows: The corridor to enter the Routt National Forest boundary on the west side of the NW 1/4 of Section 28, T. 7 N., R. 84 W.; thence eastward on the north side of Soda Creek and within one-half mile of this stream to a point on a north-south line running through a high point with elevation of 8565; hence southeast, crossing Soda Creek

1/ Prepared by Colorado Division of Game, Fish and Parks for submission to U.S. Bureau of Reclamation, Region 7, March 17, 1972.

at a point below its confluence with the South Fork of Soda Creek; hence along route described in earlier recommendations.

We must certainly agree with the USFS recommendation on Page 8 that there be no more than one corridor between Hayden and Ault and the capacity of the corridor be limited to two transmission lines; and furthermore, that this corridor be adjacent to the existing Hayden-Archer Transmission Line insofar as practical.

The use of construction access roads by the public is mentioned in several places throughout the report. We agree with the statement on Page 15 that traffic over access roads in important wildlife "areas should be controlled by appropriate authorities." Generally speaking, unless there are overriding reasons to do otherwise, we recommend such roads on public lands be closed to public vehicular travel. A statement made elsewhere, Page 25, suggest that "Access roads will allow access to some areas not previously visited by many people." Such access may not be desirable in some instances and may contribute to increased vandalism and create a hazard from people climbing structures.

Any roads constructed should avoid water influence zones and should be constructed in a manner that will minimize siltation of nearby streams. Those roads not needed for maintenance or other access should be restored to natural condition immediately after construction in the area is completed.

Adverse impacts on wildlife during construction are mentioned on Page 25. To this section we suggest the following additions: Elk calving grounds should be added to those areas to be avoided. If such areas can't be avoided, construction activity should be excluded in the period between May 15 and June 30 unless it is evident the elk have moved to higher ranges before June 30. Likewise, construction activities on big game winter ranges should be avoided during the months December through April.

A statement on Page 26 that no noise is anticipated after the transmission line is completed is subject to question. The constant humming sound which results from power transmission through the conductors can't be ignored. While adverse effects on wildlife from this type of noise is not well understood, there is some evidence bird mortality in the midwest may be associated with such noise. Additional research is needed, as suggested on Page 15, to accurately determine the effect of transmission lines on wildlife.

An inventory of the flora, fauna and special interest points for the various areas shown on Exhibit 3 are presented in the body of the study report. There are a few errors of omission and commission in some of these inventories. On Page 32, whitefish should be added to the wildlife section and the mineral hot springs should probably be mentioned as a special interest point. Whitefish should likewise be mentioned on Page 46. Wildlife "exclusive" to the area covered on this page should include sandhill cranes. This area and one adjacent to it in North Park are the only areas in Colorado where these birds have been known to nest in recent years. An interesting historical or archeological site which should be mentioned on Page 58 are remnants of wickiups in the area north or east of the North Sand Hills which were used by Indians or by early explorers or trappers in the area. The inclusion of oakbrush on Page 80 is subject to question, while bitterbrush, which is common here, is omitted. Perhaps the unusual occurrence of pinon pine in this area deserves special mention. Oakbrush should also be deleted from the flora mentioned on Page 93. Antelope is an important species which was omitted on Page 94. Special interest points which should be included on Page 95 are the Natural Fort and the Lindenmeier Archeological Site. In no area do we find Douglas fir or blue spruce included among the flora, which is probably an oversight.

The North and South Sandhills Natural Areas are mentioned on Page 55. Elsewhere in the report (Pages:58, 60 to 64, 69, and 72) these same areas are variously identified as the north, east, south and west sand dunes. To clear up the apparent confusion, we offer the following: The northern most dunes in North Park are identified on a USGS Quadrangle as the "North Sand Hills," while the other dunes are called the "East Sand Hills." The northern sand hills have been officially identified by the U.S. Bureau of Land Management as the North Sand Hills Natural Area. As far as we know, the East Sand Hills have no similar classification by federal or state agencies.

Helicopter installation is mentioned on Pages 47 and 48. We wholeheartedly support the U.S. Forest Service in its recommendation that helicopter construction be used in the Soda and Fish Creek drainages where there is no existing road.

The painting of structures to blend in with the landscape is suggested for some areas on Page 132. We would recommend that future reports and environmental statements be more definitive as to where this would be done.

In addition to the aforementioned, we wish to direct your attention to some other points.

Page 27- We fail to understand the statement: "The multiple-use concept will be employed in the location of the line and each individual structure site within the selected corridor."

Page 57- Colorado Highway No. 14 should probably be included here.

Page 61- It appears something might have been omitted from the last sentence on this page.

Page 66- Cloudbursts are known to occur in this area.

Page 93- Livestock grazing was overlooked as an agricultural use here.

Page 109- The adverse impacts of a power transmission line on Cherokee Park Management Area was over minimized, in our judgment.

562.-
C.R.S.P.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

ROOSEVELT NATIONAL FOREST
ROCKY MTN. BANK BUILDING
FORT COLLINS, COLORADO 80521

ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO
2740 Hayden - Ault
Transmission Line

March 23, 1972

OFFICIAL FILE COPY
Bur. of Rec.
Reg. 7
MAR 24 1972
To
200 Griffin cwg 3/24
Denver MH 3/24
150 Egan MH 3/24

Mr. C. W. Griffin, Regional Engineer
Bureau of Reclamation, Region 7
Building 20, Denver Federal Center
Denver, Colorado 80225

Dear Mr. Griffin:

Forwarded, herewith, is a draft copy of the Hayden - Ault 345 K. V. Transmission Line Corridor Study with the Roosevelt National Forest comments on the study written inside the draft report.

On March 14, 1972, Roan Anderson, Redfeather District Ranger, flew the 3-S Corridor with Walt Terry, U.S. Bureau of Reclamation. Mr. Anderson also studied the corridor with other U.S. Bureau of Reclamation and Bureau of Land Management people.

Comments and recommendations are as follows:

The 3-S Corridor is unsatisfactory as shown on exhibits 2, 4, and 5 from the Medicine Bow Divide to Highway 287. We feel the "narrowness" and "straightness" of the 3-S Corridor limits the opportunities to blend the proposed line into the landscape and to practice the Environmental Criteria for Electric Transmission Systems (prepared jointly by U.S. Dept. of Interior and U.S. Dept. of Agriculture). We feel, that in order to practice the principles as outlined in Environmental Criteria Guidelines, the corridor must be wider than shown. Therefore, we are recommending a corridor with outer limits of 3 - 4 miles as shown on the enclosed map (the northern boundary being the Hayden Archer line and the southern boundary being the proposed 3-S Corridor).

We, also, recommend that Corridor 3 cross Highway 287 south of the Colorado - Wyoming line and continue eastward to Mound Mountain and then southeastward towards Ault-Substation (see enclosed map for corridor relocation.)

The reasons for designating a wider 3-S Corridor and continuing Corridor 3 on east of Highway 287 are to minimize the impact of the transmission line on:

1. Several ranch headquarters
2. The unique Chimney Rock geological area
3. Virginia Dale old stagecoach station

WOOD · WATER · FORAGE · WILDLIFE · RECREATION

4. The Overland Trail Historic Station
5. The heavy timbered Boulder Ridge that will be crossed and is highly visible from Highway 287.
6. The landscape west of Virginia Dale area is visible from a long segement of Highway 287.

We suggest, at this time, that aerial photo coverage and aerial obliques of the proposed Hayden - Ault corridor be taken to aid in the line location and visual studies. In the area between Medicine Bow Divide, where proposed Corridor 3-S departs from the Hayden - Archer Line, to the Table Mountain area, we suggest the coverage extend north to existing Hayden - Archer line to 1 - 1½ miles below Corridor 3-S. In the Virginia Dale area the coverage should extend 1½ miles to west of Corridor 3 and as far northeast as Mound Mountain.

Sincerely,

W. K. KELSO
Forest Supervisor

NOTICE
If you detach enclosures, please insert your code number 2230

C.R.S.P.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ROOSEVELT NATIONAL FOREST
ROCKY MTN. BANK BUILDING
FORT COLLINS, COLORADO 80521

ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO

2740 Hayden - Ault
Transmission Line

June 7, 1972

OFFICIAL FILE COPY
Bur. of Recl.
Region 7
JUN 9 - 1972

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200	Cuds	6/13
230	[illegible]	6/12/72
150	[illegible]	6-14
620	Watts	6-23

620 O'Brien 6/27 EGV

Mr. C. W. Griffin, Regional Engineer
Bureau of Reclamation, Region 7
Building 20, Denver Federal Center
Denver, Colorado 80225

Dear Mr. Griffin:

Forwarded, herewith, are our comments on the final draft of the Hayden - Ault 345 K.V. Transmission Line Corridor Location Study as requested in your letter of May 31, 1972.

1. We found that it was extremely difficult to locate the recommended corridor without the location maps with the corridor revisions made since the preliminary draft was formulated and typed. Location maps depicting the corridors are vital to the review process, and without them the review is less than complete.

2. Page 9 and 10. We disagree with this portion of the Corridor Study Report. Under existing conditions, we feel that the Hayden-Archer - Hayden-Ault Transmission Line Corridor is the last corridor available for transmission lines on the Roosevelt National Forest. We, also, feel that two transmission lines are the maximum that can be allowed in this corridor. This maximum will be reached when the Hayden - Ault Line is constructed, since the Hayden - Archer Line is already in existence. We, however, could stand two separate circuits on the same towers, be it the Hayden - Archer Line and/or the Hayden - Ault Line at some future date.

3. Pages 114, 115, 127, and 145. We feel that the 3-S Corridor is unsatisfactory from the Medicine Bow Divide to Highway 287. The "narrowness" and "straightness" of the corridor limits the opportunities to blend the line into the landscape and the use and application of the guidelines as spelled out in the Environmental Criteria for electric transmission lines. In order to comply with the Environmental Guidelines, the corridor must be wider than indicated. We, therefore, recommend a corridor from the Medicine Bow Divide to Highway 287 be 3 to 4 miles wide as shown on the enclosed map (the northern boundary being the Hayden - Archer Line and the southern boundary, the proposed 3-S Corridor).

We, also, recommend that Corridor 3 continue eastward crossing Highway 287 just south of the Colorado-Wyoming line and turn southeastward toward Ault Substation at or beyond Mound Mtn. (See enclosed map for location.)

The reasons for designating a wider 3-S Corridor and continuing Corridor 3 on to the northeast of Virginia Dale are to minimize the impact of the transmission line on:

1. The Bob Hohnholz's Ranch in the Laramie River Valley.

2. The Shaffer Dude Ranch northwest of Virginia Dale and west of Highway 287 near the state line.

3. The Unique Chimney Rock Geological Area.

4. Virginia Dale old stagecoach station.

5. Overland Trail Historic Station.

6. The heavy timbered Boulder Ridge that will be crossed and is highly visible from Highway 287.

7. The landscape south and west of Virginia Dale is visible from long segments of Highway 287.

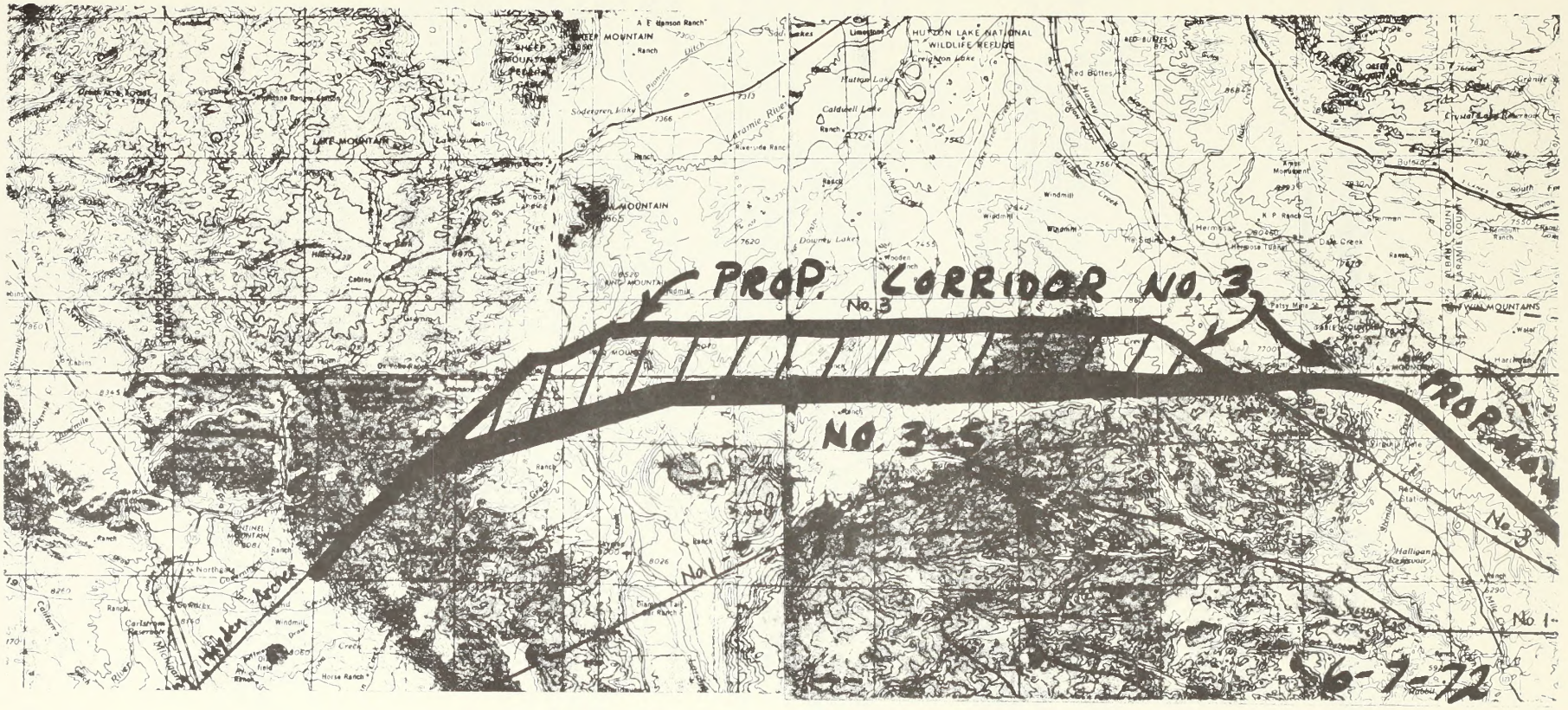
8. The Environmental Criteria for Electric Transmission Lines can more easily be adhered to.

Sincerely,

W. K. KELSO
Forest Supervisor

Enclosure

Bur. Rec


PROP. CORRIDOR NO. 3
No. 3
NO. 3-S
PROP.
No. 3
No 1-
6-7-72
HURON LAKE NATIONAL WILDLIFE REFUGE
SHEEP MOUNTAIN
LAKE MOUNTAIN
Laramie River
Hutton Lake
Caldwell Lake
Downey Lake
Windmill
Heimbaugh
Dale Creek
TWIN MOUNTAINS
Halligan Reservoir
Hyden Arroyo

C.R.S.P.

Routt County Regional Planning Commission

Steamboat Springs, Colorado 80477

June 27, 1972

COPY
JUN 30 1972

To	Surname	Date
200		CW87/3
		WWK 6-30
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60	Watts	6/3

James M. Ingles
Regional Director
Bureau of Reclamation
Building 20, Denver Federal Center
Denver, Colorado 80225

Re: Proposed 345-kv transmission line

Hayden - Craig

Dear Mr. Ingles:

Members of this commission oppose the corridors your group has suggested for the proposed powerlines. Those powerlines should not cross the Elk River or that portion of the Yampa River which contain some of the most scenic areas in the entire state. These areas are being intensely developed for recreation uses. The visual impact of towers and lines would detract materially from this area.

Inasmuch as the major source of power for this and future lines will be generated in the Craig area, we feel that the Bureau should consider and investigate a routing for these lines that would go north from the power source, swinging to the east at some point south of the Wyoming line, thence following an easterly route, crossing the mountains at a lower altitude than any of the routes that were considered in the Bureau's report as presented to this commission in April, 1972. A route in that direction would cross only sparsely populated land with much more gentle terrain making construction less difficult.

Sincerely,

M. S. Dismuke
Chairman

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Room 700 Colorado State Bank Building
1600 Broadway
Denver, Colorado 80202

IN REPLY REFER TO
C.R.S.P.
5-930
1785

Your ref. 852.-C.R.S.P.

June 28, 1972

Memorandum

To: Bureau of Reclamation, Bldg. 20, Denver Federal Center
Attn.: Mr. Ingles

From: State Director, Bureau of Land Management, Colorado

Subject: Hayden-Ault Transmission Line

As a result of the public meeting held in Steamboat Springs in which the public reviewed your proposed Hayden-Ault 345 K.V. transmission line, an alternate route was nominated. At your invitation, Mr. Shilling assisted in a field review of the route on June 27.

Our comments on this proposed route are as follows:

1. The route is longer than the recommended route, therefore having greater total potential environmental impact.

2. The greatest part of the route, well over 70%, will traverse forested areas or be adjacent to forest. Approximately six miles would be in heavily harvested area and would create no significant problem. The rest of the area would be severely impacted by the construction and physical existence of this line.

3. The northern route, except for about six miles, is presently unaffected by development except for ranching and a gravel road.

4. A transmission line corridor of potentially three lines and the necessary construction impact, as well as the very presence of these lines, would make an irreversible impact on a large segment of land not presently committed.

5. The I-S route is along or near areas currently committed to rather intensive development. The greater part of the I-S line is adjacent to the existing Hayden Archer line.

In summary, I feel the public nomination, after due investigation, will create several times the environmental impact than the recommended route. It will also introduce a new use into an area yet uncommitted. Therefore it is the Bureau of Land Management's position that this proposed route not be adopted.

Dale R. Andrus

DALE R. ANDRUS

THE STATE HISTORICAL SOCIETY OF COLORADO

Colorado State Museum, 200 Fourteenth Avenue, Denver 80203

July 18, 1972

Mrs. Deborah Linke
Code 7-150
Bureau of Reclamation
Denver Federal Center
Lakewood, Colorado 80225

Re: Colorado River Storage Project
Transmission System
Hayden-Ault
345-KV Transmission Line

Dear Mrs. Linke:

We know of no significant historic or archaeological sites or structures which will be adversely affected by the route identified on Exhibit 5 submitted to this office in conjunction with the above referenced project.

Sincerely,

W. E. Marshall
Executive Director

Directors: STEPHEN H. HART, Chairman • WALTER A. STEELE, President • E. WARREN WILLARD, Vice President • MRS. PIERPONT FULLER, Treasurer • ROBERT C. BLACK III • JOHN EVANS • MRS. WILLIAM S. FALKENBERG • JOHN C. JOHNSON • MRS. WILLIAM C. McLEARN • MORRISON SHAFROTH • ROBERT L. STEARNS • JAMES S. SUDLER • MRS. CHARLES L. TUTT • STANLEY T. WALLBANK • WILLIAM E. WILBUR
Ex Officio: GOVERNOR JOHN A. LOVE • FRANK C. ABBOTT • MRS. RICHARD C. KENNEDY

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

2720, Hayden-Ault
345 KV Transmission Line

August 22, 1972

Mr. Jim Spence
U. S. Bureau of Reclamation
Construction Office
P. O. Box 507
Cheyenne, Wyoming 82001

Dear Mr. Spence:

This confirms your request for a brief summary of our observations on August 15 concerning a possible corridor location for the Hayden-Ault 345 KV transmission line. This route is alternate No. 6 and the comments apply only to the approximate 12 mile segment within the Medicine Bow National Forest in Wyoming. No attempt is made to evaluate the merits of this route with the other alternates proposed in Colorado.

In general, the area of corridor No. 6 is very similar to the description given for Area B, Continental Divide, (p. 49) of the Corridor Location Study of June 1972.

The physiography, soils, vegetation, wildlife and other natural resources all fall into the general environmental considerations listed from Area B. The entire route on the Medicine Bow National Forest is within the intermediate zone, although it closely skirts the crest zone along the Continental Divide south of Hog Park. It crosses a segment of travel influence zone on the Hog Park-Whiskey Creek road.

Road Access

Fairly recent access roads and several going or proposed timber sales on both the Medicine Bow and Routt National Forests have made general access to the area fairly easy. It was noted that there are several newly constructed roads not shown on the U.S.G.S. topographic maps. Namely in the vicinity of Hog Park, Commissary Park, the State Section 16 (T. 12 N., R. 84 W.) and a road under construction in Whiskey Creek on the Routt National Forest. Due to the relatively rolling mountain terrain along this part of the Continental Divide, several jeep trails traverse through the area, particularly along the established sheep driveways. Rose Creek, a tributary to the North Fork of the Little Snake River, is probably the area of steepest terrain and is inaccessible to any motor vehicles. Rocky outcrops are very minimal along this corridor.

Recreation and Land Uses

The tentative corridor No. 6 does not traverse through or near any existing or inventoried, potential recreation sites, on the Medicine Bow National Forest. The corridor does just barely miss the south boundary of the Hog Park recreation composite area near the Continental Divide in Sections 17 and 18. The Hog Park recreation area is identified as a management unit (Intermediate - 5) in the District and Forest multiple use management plans. Management criteria for this management unit would exclude a transmission line of this type.

There are no other easements, special use permits of rights-of-way outstanding along this possible corridor.

There are no areas of special scenic, historical, archaelogical or geological significance that are known along or adjacent to this corridor.

Aesthetically, there would be some undesirable impacts. This would be particularly true where the line would cross the Encampment River in the vicinity of Commissary Park. The State Line Road traverses through this area and it is proving to be a very popular recreation access road for both the Medicine Bow and Routt National Forests. The actual crossing, as tentatively shown, would be on the Routt National Forest. It is suggested that a careful visual analysis be made of this area prior to any firm commitment to this location. An off-hand opinion is that the line could be more easily screened if it was located approximately one-fourth-mile south as it leaves the southeast corner of Section 16.

Fortunately, most of the terrain is rather rolling which lends itself to easier blending into the landscape. It is doubtful if the line would be visible from the Hog Park area at all. Heavy clearing of conifer trees would be required except where it crosses some scattered open grasslands and meadows in Sections 13, 14, and 15 (T. 12 N., R. 85 W.) and in the foothill area near the Little Snake River valley where the vegetation is mostly aspen and sagebrush.

Grazing

It was noted that the proposed corridor had several crossings, or could possibly be located right on several segments of sheep driveway. This would reduce clearing costs and would avoid an additional cleared corridor. Total length on sheep driveways would probably not exceed one mile however. The Forest Service has no objection to locating the line on or adjacent to such livestock driveways as long as the movement of livestock is not restricted by towers.

General

During the aerial observation flight it appeared that there may be some advantages to continuing the line further west after approaching the Little Snake River valley prior to turning southwest into Colorado. This possible alternative would locate the corridor in the area north of the valley in the vicinity of Sheep Mountain on private lands. This would increase the mileage on National Forest by three or four miles also. This location would keep the line out of the valley floor which would then be crossed at a near right angle further west.

The Medicine Bow National Forest is certainly not desirous of having a transmission line corridor of this magnitude located here. We recognize that this corridor must be evaluated along with several other alternatives. It would appear to us that the long-range environmental impacts are very much the same on most of the routes studied and that it is only a matter of time until similar consequences are encountered on almost any route. In view of this, it would appear more reasonable to attempt to reduce both costs and environmental impacts to a minimum by selecting the shortest feasible route available.

We recognize that this is only a very superficial evaluation of corridor No. 6 at best. If we have failed to cover some pertinent items, please let us know.

Sincerely,

W. E. AUGSBACH
Forest Supervisor

THE UNIVERSITY OF WYOMING
DEPARTMENT OF ANTHROPOLOGY
ARTS AND SCIENCES BUILDING
UNIVERSITY STATION, BOX 3431
LARAMIE, WYOMING 82070

October 2, 1972

C.R.S.A.
Reg. on LM
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Surname | Date
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150 Spence 10/4

Bureau of Reclamation
Regional Director
Atn: LM-200
Lower Miss. Region
Bldg. 20, Denver Federal Center
Denver, Colorado 80225

Gentlemen:

I met with Jim spence last week and we discussed the two northern proposed routes, route number 3 and route number 3s, for the Hayden-Ault 345-kv transmission line. It appears that route number 3 will pass near or through one or more archaeological sites. There are several sites located along both proposed northern routes as this area is fairly rich in archaeological material. It is very likely that more important sites will be found in that area.

Our position on the matter is that we have no objections to either of the proposed routes, but we highly recommend that an archaeological survey be conducted along the chosen route. The survey would disclose whether or not any site might be in the path of the new line before construction begins.

We had a similar situation this past summer concerning a new power-line across the Green River Basin. Pacific Power & Light Company financed the archaeological survey which we conducted before they began construction on the line.

Dr. George Frison is the Wyoming State Archaeologist and the head of the Department of Anthropology, here at the University of Wyoming. He is presently in the hospital and in his absence I met with Mr. Spence and made the above recommendation to him. I have worked for Dr. Frison for the past four years and am employed by him at this time.

We will be happy to supply you with any information you might need in the future. Dr. Frison should be well enough in a couple of weeks to discuss this matter further.

Sincerely,

George Zeimens

GZ:lf
cc: Mr. J. Spence

STATE OF COLORADO
John A. Love, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
Harry R. Woodward, Director
6060 Broadway
Denver, Colorado 80216 • 825-1192

October 19, 1972

Bur. of
Region
OCT 20 1972
To | Surname | Date
200 | | 10/20
600 | A. Watts | 10/24
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620 O'Brien 10/24 EGV

Mr. James M. Ingles, Regional Director
U.S. Bureau of Reclamation
Bldg. 20, Denver Federal Center
Denver, Colorado 80225

Reference: LM-230, 652-C.R.S.P.

Dear Mr. Ingles:

Enclosed are this Division's comments and recommendations relative to the Addendum to Corridor Location Study, prepared by your Bureau in cooperation with the U.S. Forest Service and the Bureau of Land Management, dated September 15, 1972. Also incorporated in these comments and recommendations are the Division's remarks pertaining to two other alternatives mentioned at the meeting of land use agencies in your regional office on October 4, 1972, namely the possibility of double circuiting the Hayden-Ault Line with the Hayden-Archer Line south and east of Steamboat Springs, and the relative merits of Alternatives 3 and 3S in Areas D and E. We hope this information will prove helpful in reaching a decision which will be in the best public interest.

We again wish to express our appreciation to your office for seeking this Division's input in the corridor selection process for Hayden to Ault Transmission Line.

Sincerely,

Harry R. Woodward
Director

Laurence E. Riordan
Acting Director

RLH/cb
cc: (Distribution as per attached list)
Encl.

NOTICE
If you detach enclosures, please insert your code number_____.

DEPARTMENT OF NATURAL RESOURCES, T. W. Ten Eyck, Executive Director • WILDLIFE COMMISSION, Dean Suttle, Chairman, William W. Robinson, Vice Chairman • Ford Strong, Secretary • Dr. J. K. Childress, Member • Wilton W. Cogswell Jr., Member, Harry Combs, Member • R. Withers Cool, Member • Charles A. Gebauer, Member • Orest Gerbaz, Member • LeRoy Robson, Member

cc/encl. to:

T. W. Ten Eyck
U.S. Forest Service
  Regional Office
  Routt National Forest
  Roosevelt National Forest
Bureau of Land Management
  State office
  Craig office
  Glenwood Springs office
Bureau of Sport Fisheries and Wildlife
  A. Hale
Colorado Wildlife Commission
R. Elliott
G. Rogers
E. Cook
P. Barrows

ADDITIONAL COMMENTS ON ALTERNATIVE CORRIDORS FOR HAYDEN-AULT 345-Kv TRANSMISSION LINE [1]

Included herein are the comments and recommendations of the Colorado Division of Wildlife relative to alternative corridors for the Hayden to Ault 345-Kv Transmission Line as expressed in the Addendum to Corridor Location Study dated September 15, 1972, and other alternatives discussed at the interagency meeting on October 4, 1972. The Division's remarks here are intended as additions to those previously submitted to the Bureau of Reclamation in reports dated July 1971, November 24, 1971, and March 17, 1972, and do not supercede those of earlier reports unless specifically stated.

Generally speaking, the Division endorsed the corridor recommendations contained in the Corridor Location Study dated February 22, 1972, which included that portion of Alternative No. 1 from Hayden to Buffalo Pass, thence eastward across North Park on Alternative No. 3 to the Medicine Bow Range, and thence on eastward on a compromise between No. 1 and No. 3 just south of the Wyoming-Colorado state line, subsequently identified as No. 3S. In view of new alternatives presented, some modifications in this recommendation are appropriate.

This Division is opposed to Alternative Corridor No. 5 and variations thereof for several reasons, among which are the following. This Corridor would grossly alter the relative wild characteristics of this area by building new roads and clearing of timber from the power line right-of-way. In addition to disturbing of undeveloped areas identified by the Routt National Forest, which the Colorado Wildlife Commission has previously recommended be left undeveloped, the road building and timber clearing would have immediate and long-term adverse impacts upon fish and wildlife, including but not limited to an increase in trout stream siltation, destruction of food and cover plants for big game, small game, and fur bearers, disturbance of deer and elk during critical periods in their life histories, and an increase in poaching as a result of improved access.

Alternative No. 6 would be less detrimental to fish and wildlife values than No. 5 from Craig, Colorado north to Baker Peak. From Baker Peak eastward, No. 6 would be similar to No. 5 in its adverse impacts on fish and

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[1] Prepared by Colorado Division of Wildlife, for presentation at public hearing in Steamboat Springs, Colorado, October 24, 1972.

wildlife.

Therefore, of the two corridors, No. 5 and 6, this Division would prefer the selection of No. 6 over No. 5. However, we are not convinced that either of these is in the best interest of wildlife.

The double circuiting of Hayden-Ault and Hayden-Archer lines south and east of Steamboat Springs, Colorado, as discussed at the interagency meeting on October 4, 1972, has considerable merit in the opinion of this Division. This alternative would avoid degradation of a relatively undisturbed area along Alternative No. 1 from the Elk River eastward to Buffalo Pass, which this Division considers the least acceptable of those alternatives recommended in the Bureau's Corridor Location Study of February 22.

Concerning corridor selection between Alternatives 3 and 3S from the Medicine Bow Range eastward, which were also discussed at the previously mentioned interagency meeting, this Division prefers No. 3 to No. 3S. If for political reasons, such as unacceptable demands of the Wyoming Public Utilities Commission, the line would have to be located south of No. 3 in Colorado, we urge that Alternative No. 3S be the southernmost location of the line.

Considering the foregoing presentation and earlier recommendation, this Division now makes the following revised recommendations for corridor selection:

Starting at Hayden and proceeding eastward, the Hayden to Ault power transmission line should parallel the existing line to the top of Quarry Mountain, where the line should be double circuited with the existing Hayden-Archer line on new towers for a distance of four to five miles, thence parallel to the Hayden-Archer line to the point where the Hayden-Ault line bends southeast in Area E, thence within Corridor Alternative No. 3 to Ault.

If double circuiting in the Division's aforementioned corridor recommendation is not possible, we would return to our earlier recommendation calling for use of Alternative No. 1 from Hayden to Buffalo Pass. Reference is made to this Division's two recommendations on a route location within this portion of Alternative Corridor No. 1, contained in reports dated November 24, 1971, and March 17, 1972. After making field investigations in the Soda Creek drainage, we are convinced that the best location here would be that

first recommended on November 24, which is a route staying south of Soda Creek and south of the South Fork of Soda Creek for that portion within Routt National Forest. Although there are elk calving grounds on both sides of Soda Creek, the route south of Soda Creek would avoid encroachment on the undeveloped area within the Soda Creek drainage this Division has recommended to the U.S. Forest Service for wilderness study. Additionally, there is less likelihood for damage to the trout fishery in Soda Creek by staying south of this stream. Constructionwise, the southern route is more feasible, there being ample space, good foundation material, and a minimum amount of clearing required. We would reiterate our early recommendation that helicopter installation be used on portions of this route that cannot be reached by existing roads.

AL SHATTUCK

REAL ESTATE — LAND USE PLANNING

C.R.S.P.

Region 4

NOV 13 '72

November 8, 1972

Mr. James M. Ingles, Regional Director
United States Department of the Interior
Bureau of Reclamation
Regional Office, Lower Missouri Region
Building 20, Denver, Federal Center
Denver, CO 80225

Dear Mr. Ingles:

Enclosed is a copy of the report by the Steamboat PILOT of our meeting held on October 24. Thought you might be interested. We consider it a very creditable piece of public relations and a good job of reporting.

The Steamboat PILOT has been most cooperative in working with federal and county agencies that are working for the good of the community.

Sincerely,

E. A. Shattuck

EAS:pm
encl.

THE STEAMBOAT PILOT
Steamboat Springs, Colorado
Thursday, November 2, 1972

BOR officials present 345 KV line plans

by Rob Piggott

After a considerable amount of opposition was raised at a public hearing last June concerning the installation of a 345 KV line from the Hayden plant to the Greeley-Ft. Collins area, Bureau of Reclamation officials did some additional homework and a little bit of back tracking. As a result, in a hearing last Tuesday, BOR officials presented an alternative plan which met with a generally favorable response from a crowd of some 35 to 40 people.

The proposed alternative plan involves using the present 230 transmission line corridor for a second line (345 KV) and, in the high density and recreation development area which extends through the Steamboat area, double circuiting both lines together.

BOR regional engineer C.W. Griffin said the doubling circuiting would extend for 4.7 miles and begin where the existing 230 line goes over the east side of Emerald Mountain.

Double circuiting, Griffin explained, is using one tower to carry the present and proposed lines. He added that the procedure would require replacing the present lattice towers with stronger structures to support both lines. During the construction phase, Griffin said, a temporary line would be built in order that the present 230 line could remain in service.Griffin said the cost of the double circuiting would run between $400,000 and $500,000 a mile.

Al Shattuck, who chaired the meeting, noted that the method of double circuiting would be an improvement over the present lattice towers if the single pole structure is used.

The single pole, Shattuck said, would eliminate some of the clutter, is architecturally more pleasing, can be painted with a non-reflective paint, and, although higher than the present lattice towers, requires a slightly narrower right of way.

The new proposal of using the present transmission line corridor was prompted after a study of an alternative plan, requested by Steamboat engineer Dick Randolph, was found to be impractical.

The route studied, Griffin said, involved having the 345 KV line go directly north from the Hayden Plant, crossing California and Slater Parks and then turn east and head along the Wyoming border before dropping down into the Greeley-Ft. Collins area.

Griffin cited slide problems and inadequate access to portions of the corridor as reasons for dropping the route. Griffin pointed out that the line would go through Forest Service land designated as wilderness areas which, because of the remoteness, would hinder line maintenance.

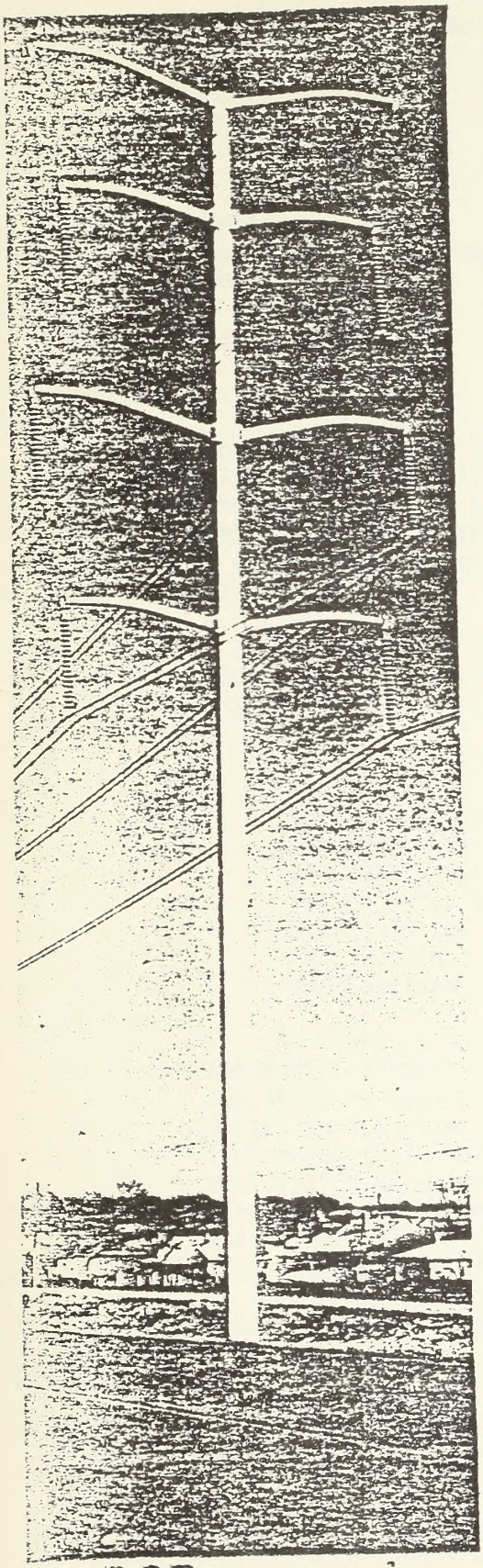
Some questions remained unanswered at the hearing. BOR officials said the maximum width of the corridor has not been determined nor what would happen to private land situated between the two lines.

The question of what kind of towers would be used along the route which would be double circuited was also left some what in the air. Although the single pole structure for double circuiting are favored, BOR officials said they are considerably more expensive than other power line poles used for double circuiting.

The BOR is expected to go before the Routt County Commissioners for final approval on their proposed plans. Shattuck said another public hearing will be held if enough public interest is shown.

BOR officials say they would like to start line construction in the Routt area by the summer of 1974. Griffin said they are also expecting, if the plans are approved, to have the double circuiting completed through the Steamboat area by the fall of 1975.

THE STEAMBOAT PILOT
Steamboat Springs, Colorado
Thursday, November 2, 1972

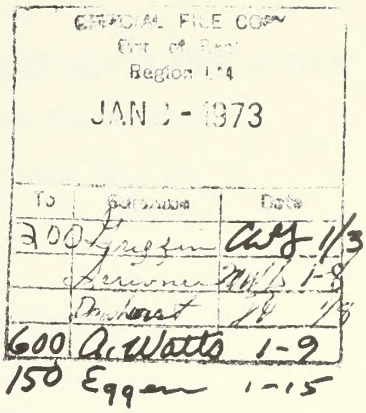


BOR proposal

Bureau of Reclamation regional engineer C.W. Griffin has suggested that a portion of the present transmission line which goes through the Steamboat area be replaced by a single pole structure. The new structure would allow the BOR to "double circuit" the present 230-KV and proposed 345 KV (Kilovolt) line through Steamboat. As opposed to the present lattice structure which can be seen crossing Highway 40 near Ramada Inn, the single pole eliminates some of the clutter, can be painted a non-reflective color to blend in with the background, and is considered architecturally more pleasing. The poles are designed for use in high density areas and, if the need arises, can support another 345 KV line in place of the present 230 KV line.

PLATTE RIVER MUNICIPAL POWER ASSOCIATION
P.O. BOX 580
FORT COLLINS, COLORADO 80521

December 27, 1972



Mr. C. W. Griffin
United States Bureau of Reclamation
Denver Federal Center
Region 7 - Building 20
Denver, Colorado 80202

Dear Mr. Griffin:

Reference our last meeting on December 1, 1972 on the routing of the Hayden-Ault 345kv transmission line. During the meeting, I promised to review the legal problems of PRMPA connected with ownership in the State of Wyoming. I submit the following statement which should be included in the Corridor Study and the ultimate Environmental Analysis now in preparation:

> "Platte River Municipal Power Association is a non-profit Colorado corporation. ARTICLE III(b) of its Articles of Incorporation reads as follows:
>
> "To conduct its business and affairs for the benefit of said Estes Park, Colorado; Fort Collins, Colorado; Longmont, Colorado; and Loveland, Colorado, and ultimately to vest all right, title and interest of the corporation in or to all of its property and assets in the said Estes Park, Colorado; Fort Collins, Colorado; Longmont, Colorado; and Loveland, Colorado."
>
> As there is no constitutional or statutory authority for municipalities to own or operate facilities outside the State of Colorado, Platte River should not be a joint tenant in a section of transmission line in Wyoming for the reason that, when title to such interest vests in the municipalities comprising Platte River, those municipalities would not be empowered to own, operate, or maintain said line. All of the jointly owned Hayden-Ault 345kv transmission line should be located in Colorado."

Please notify me if the above statement is not satisfactory to be included in the analysis.

Sincerely,

PLATTE RIVER MUNICIPAL POWER ASSOCIATION

Stanley R. Case

Stanley R. Case, President

SRC:sjh

THE STATE HISTORICAL SOCIETY OF COLORADO

Colorado State Museum, 200 Fourteenth Avenue, Denver 80203

February 27, 1973

Mrs. Deborah Linke
Code 7-150
Bureau of Reclamation
Denver Federal Center
Lakewood, Colorado 80225

Dear Deborah:

According to our survey records, the only historic site located within the expanded Hayden-Ault Transmission Line project north and east of Craig (designated as proposed route No. 6 on the attached map) is the Battle Creek site. The following description of that site was prepared for our inventory of historic properties:

> At confluence of Battle Creek and Little Snake River, near Wyoming border. Site of battle in 1841 (or 1842) between about 25 white trappers and several hundred Cheyenne, Sioux, and Arapahoes, who chased trappers to this position from Wyoming. Henry Fraeb, who had a trading post on the South Platte, and two other trappers were killed but, by making every bullet count, the trappers had taken such a heavy toll of Indians by nightfall that they left. Mountain man Jim Baker, although very young, fought here. Creek and nearby mountain named for battle.

In our earlier conversations we agreed that it would be impossible for the transmission line to avoid crossing the Overland route at its eastern terminus. I did suggest, however, that perhaps the line could be routed to avoid the sites of major stage stops along the original route. Following is a listing of the main stops along the Denver cut-off, which correspond to the route marked in red on the attached map:

STATION	Miles between stations
Denver	--
Child's	11
Boon's	12
Little Thompson	18
Big Thompson	8
Laporte	16
Boner	10
Cherokee	12
Virginia Dale	12
Willow Springs, Wyo.	15

I hope that this information is of use to you and apologize for the delay in getting it to you. Again, let me say how much we appreciate the interest in historic preservation being expressed by the Bureau of Reclamation in this matter.

Sincerely,

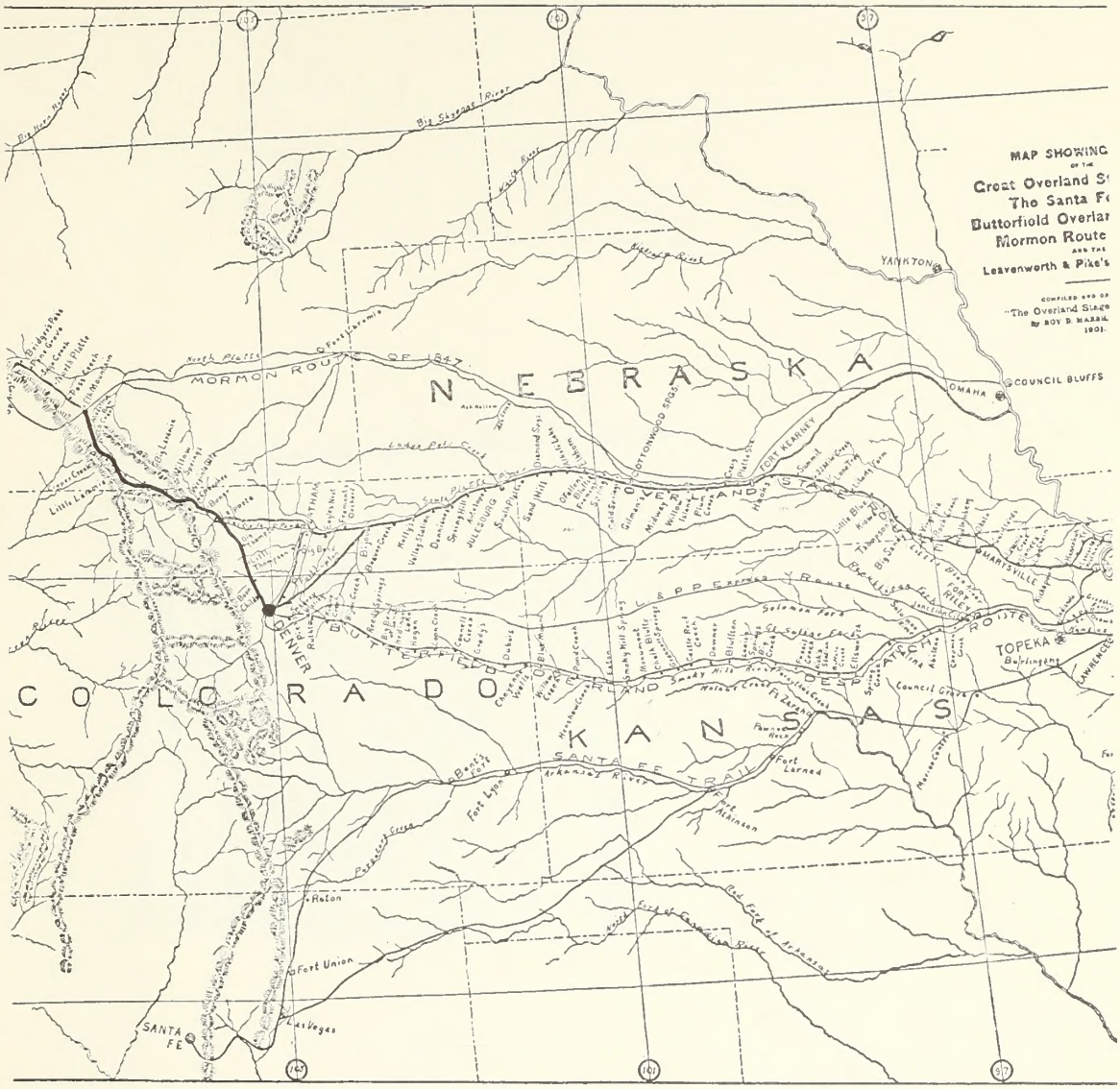
Sue Nieminen

Susan A. Nieminen
Assistant to the Director

Enclosures

GPO 848-303

Copied from: THE OVERLAND STAGE TO CALIFORNIA. Frank A. Root and William Elsey Connelley. Glorieta, N.M.: The Rio Grande Press, Inc., 1970. First printing, 1901.



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